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ABSTRACT

In 1991, the American Association of School Administrators (AASA) published "An Introduction to Total Quality for Schools" to initiate its new learning network. This second collection of readings on quality management in education offers a series of perspectives through which readers can refine their own definitions and knowledge. It contains lessons from practice within classrooms, buildings, districts, and statewide networks as well as in fields such as vocational and special education. Also included are summaries, historical overviews, lessons from other fields, and assessments of current status. The first section of the book gives the broad picture of how in the 1980s the United States began to listen to W. Edwards Deming and others advocating a new nonhierarchical system of management based on teamwork, empowerment of workers, and commitment to continuous improvement. The second section describes how educators interpret quality management principles in education, and the third shows how these principles are being applied in classrooms, schools, school districts, community colleges, and universities. The final section contains articles from AASA's newsletter, "Quality Network News," contributed by educators who describe their own experiences with quality management. Appended are lists of further readings about quality and other AASA resources on quality management in education, bibliographic credits for each article, an author index, and a school district index. (MLF)

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Quality Goes to School

READINGS ON QUALITY MANAGEMENT IN EDUCATION

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American Association of School Administrators

Quality Goes to School

READINGS ON QUALITY MANAGEMENT IN EDUCATION

American Association of School Administrators

Quality Goes to School

Readings on quality management in education

Quality Goes to School is AASA's second collection of readings on quality management in education. The first, *Introduction to Total Quality for Schools*, was published in 1991. Both collections are sent to AASA's Total Quality Network subscribers as a membership benefit. For ordering information, see page 240.

Dorothy Mulligan prepared *Quality Goes to School*, with assistance from Martha Bozman, Lewis Rhodes, Leslie Eckard, Katie Ross, and Florence Guyer.

AASA is grateful to authors and publishers who permitted their articles to be included in this collection.

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Please tell us how useful you found this AASA collection of readings and how we might improve similar publications in the future. Call Martha Bozman, Director of Quality Initiatives, at 703/875-0754; Lew Rhodes at 703/875-0733; or Dorothy Mulligan at 703/875-0721. Thank you.

Introduction

Quality Goes to School

Readings on quality management in education

But what does it mean?

> *Hard to define, impossible to legislate for, quality, like truth, is an attitude of mind.*
>
> Charles Handy, in *The Age of Unreason*

> *Quality...you know what it is, yet you don't know what it is. But that's self contradictory. But some things are better than others, that is, they have more quality. But when you try to say what quality is, apart from the things that have it, it all goes poof! But if you can't say what quality is, how do you know what it is, or how do you know it even exists?*
>
> Robert M. Persig, in *Zen and the Art of Motorcycle Maintenance*

In 1991, AASA published *An Introduction to Total Quality for Schools* to initiate its new learning network. The publication included articles focusing on the concepts of Total Quality Management and W. Edwards Deming. We hoped the readings would provide a base of learnings from applications in various fields.

The fundamental questions we addressed then are still foremost in the minds of most school practitioners when they try to understand why people get so excited about the principles and practices that underlie this approach to organizational management. What does this mean for me? How does it relate to learning and children's achievement?

This search for meaning has been fettered by a lack of consistent language and definitions. Old familiar terms with meanings we assumed we knew -- such as quality, customer, and supplier -- suddenly became invested with new meanings. We see quality, total quality, and total quality management interchanged as catch-all concepts, so it is easy to see why W. Edwards Deming was such a stickler for precise definitions, why he addressed *quality* as a result and not a process, and why he totally disavowed the term Total Quality Management.

In education today, meaning is important, not just for students but also for those who shape the daily environments in which they learn. Unfortunately, the shelf life of organizational concepts -- such as restructuring, site-based management, and excellence -- decreases the more they become convenient ways to appear knowledgeable without experiencing the discomfort of thought. A real danger exists that many terms associated with the core concepts of quality management are on that same track toward relative meaninglessness.

This condition can be countered (and is) in two ways. The most powerful is through direct personal experience with these principles and practices in the work setting. Few have that opportunity, however. A second way to develop comprehensive understanding of reality can be to view it from multiple perspectives. AASA publishes this volume to further that possibility.

This publication offers a series of perspectives through which readers can refine their own definitions and knowledge.

Three years ago, when we put together the first collection of readings, we had to search extensively for articles; most of those we found came from business and industry. This time we had the luxury of choosing from many articles within the education world. Moreover, as educators have begun to integrate theory with actual practice, the nature of their writings have shifted from *whys* and *whats* to *hows*.

This book of readings includes experiential depth and horizontal breadth. It contains lessons from practice within classrooms, buildings, districts, and statewide networks as well as in fields such as vocational and special education. Also included are summaries, historical overviews, lessons from other fields, and assessments of current status.

For some, the down side of this publication's multiple perspective approach may be the apparent lack of agreement on the whats and whys of quality management. For others, this divergence may facilitate their own search for common underlying principles.

The first section of this book gives the broad picture of how in the 1980s the United States finally began to listen to W. Edwards Deming, Joseph Juran, and others advocating a new non-hierarchical system of management, one based on teamwork, empowerment of workers, and commitment to continuous improvement.

The second section describes how educators interpret quality management principles in education, and the third shows how these principles are being applied in classrooms, schools, school districts, community colleges, and universities.

The final section taps a resource not available in 1991. Each issue of AASA's newsletter, *Quality Network News*, contains articles contributed by educators who describe their own experiences with quality management. These "Systems Leaders Speak" and "From the Trenches" columns make up the final section.

Lewis A. Rhodes
Associate Executive Director

January 1994

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I.

Lessons Learned from Others

Quality Goes to School

THE TURNING POINT OF THE QUALITY REVOLUTION

Ten years ago, a television producer
introduced a curmudgeon named W. Edwards
Deming to American executives. Things have
never been the same since.

By Gerald A. Michaelson

Jeff Mermelstein

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On June 24, 1980, in Stamford, Connecticut, James Sierk, now vice president of quality at Xerox Corporation, turned on his television set at 9:30 P.M. to view *If Japan Can... Why Can't We?* The 90-minute NBC White Paper examined the achievements of Japanese and American industries in quality and productivity and introduced Japan's quality guru, an American named W. Edwards Deming. Several other Xerox managers also saw the program; like Sierk, they were impressed with its message. Xerox, which was in financial trouble and searching for ways to be competitive, ordered a copy of the documentary and made it part of a communications program for all Xerox employees.

Otis Wolkins, now corporate vice president for quality services at GTE Corporation, saw the program, too. The issues it raised influenced him to work more closely with GTE suppliers and to focus on improving each individual process within his area of responsibility.

Terry Stuck, then vice president of J.I. Case Company, a manufacturer of agricultural and construction equipment, saw a rerun the next year. "The program was a tutorial on our sleepiness and lack of strategy for quality improvement," says Stuck. "The video confirmed the need to build quality into the strategic plan at J.I. Case, and we proceeded to do so."

The program's original audience, about 14 million households, wasn't exceptionally large, although ratings were good for an NBC White Paper on economics. American management's continuing thirst for information on quality and productivity, however, has subsequently earned high recognition for this documentary. To date, tens of thousands of scripts have been requested, and orders are still being received. More than 6,000 copies of the videotape have also been ordered. The next most popular video from NBC is the Frost/Nixon interview, with fewer than 2,000 requested.

Donald Peterson, recently retired chairman and CEO of Ford Motor Company says that several executives at Ford happened to watch the NBC White Paper and "there was clear indication that people in Japan gave great credit to Dr. Deming for their spectacular improvements in the quality of their products." Peterson took a copy of *If Japan Can... Why Can't We?* out of the company library and decided to invite Deming to Ford. "Deming did a wonderful job of initiating and agitating the thought process among a wide array of people at Ford," says Peterson. "That helped us start the introspection, all of the soul searching and rethinking of how we wanted to function. That then led to our coming to a conclusion on how we should apply his ideals to the specific elements in quality."

For many managers, *If Japan Can... Why Can't We?* represented the turning point in their awareness of the importance of quality. A decade later, the effects of the program are still reverberating around the country. How could a 90-minute television program have so much impact? A comment by Reuven Frank, executive producer of the show, lends some insight. When told that *If Japan Can... Why Can't We?* was being shown to classes at Harvard Business School, Frank said, "If students are looking at a video intended for a mass audience, maybe American business is in more trouble than I thought."

After World War II, American companies were the primary producers for the world. The production-driven, high-consumption environment bred a complacent attitude toward quality and productivity. As world competition increased, American managers began looking for ways to increase productivity. At the same time, the message of the need for quality was being delivered to American industry by customers, who were switching from buying American-made goods to buying better-quality foreign products. U.S. managers began to realize that nowhere was it carved in stone that they were entitled to a specific market share.

By the time the NBC White Paper was broadcast, executives were beginning to search for answers. They sent people to Japan, went to seminars, and began to read about quality. But woe to the subordinate who was sent to Japan to find out how to achieve quality. Too often, management expected a specific solution that would provide a quick fix. No one making a single trip to a country where the language and the culture are foreign can bring back more than a snapshot of the system necessary for implementing quality management.

The first quality concept imported from Japan in the late '70s was a miserable failure. It was called quality circles and involved letting groups of workers meet to suggest improvements. American managers weren't properly trained to direct this effort, and quality circles floundered and were disbanded by many companies. The

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Stills of *If Japan Can... Why Can't We?* by Donal Holway

Deming's methods for improving productivity proved so successful that Japan's annual award for productivity is called the Deming Prize.

early failures reinforced the conviction that some different and mysterious characteristics in Japan's culture made it possible for the Japanese to achieve quality and productivity levels unachievable in America. By introducing an American as the father of modern quality, *If Japan Can...Why Can't We?* helped to dispel that myth. At the time, the name W. Edwards Deming was unknown in American industry. The White Paper producers asked Herbert Striner, dean of the business school at American University in Washington, D.C., whom they should interview about productivity. Striner suggested they go to a nearby suburb to talk with Ed Deming. Deming not only knew something about productivity, said Striner, he served cashews with his martinis.

Clare Crawford-Mason, one of the producers, recalls of her visit: "Deming kept going on and on that nobody would listen to him." Their first conversation led to five interviews, consuming more that 23 hours. The more they talked, the more impressed she was and the more suspicious she became. Deming seemed to have all the right answers — or did he? "Here is the man who has trained the Japanese on quality," she thought. "If his story is true, it should be on the front pages of all the newspapers." In the end, Crawford-Mason trusted her instincts and wound up with one of the most popular documentaries in television history.

The Deming story is a classic example of how successful people are often ignored at home, says Reuven Frank. In his view, Deming was "a prophet without honor in his own country." The NBC program gave Deming the honor he was lacking, and slowly U.S. firms began to listen to him.

Looking back on the past decade of quality experimentation, one can see that the U.S. quality movement centered around three areas: management leadership, understanding people, and measurement.

In the early '80s U.S. CEOs were "kind of" interested in quality and knew that "it" was something that had to be achieved. They didn't know how to go about implementing quality, however, and few understood the importance of being personally involved. Many thought that the responsibility for quality could be delegated.

The classic Deming story involves a Texas businessman who brushes past Deming's secretary and bursts into his office, interrupting a meeting. The guy is wearing a 10-gallon hat and a string tie with a bull-horn pipe slide. He slouches down in a chair, produces a giant business card, and says, "Dr. Deming, I'm sorry for being so rude and breaking in on your meeting, but I just had to talk to the master. My limousine's double-parked out front. My Lear jet's down on the runway at National Airport with its engines running. I've just got to get some of your time so you can help us."

Deming says. "Tell me something. Have you ever attended one of my seminars?" The Texan responds, "Oh no. I'm much too busy for that." Asks Deming, "Well, have you ever read my book?" The Texan says, "No, I'm much too busy for that. But I'll tell you this. Every one of my presidents in my divisions, and their vice presidents, or whomever you say, they'll come to your seminars, they'll read your book, and they'll understand what you're going to do." Deming pauses and says, "But you're much too busy, is that right, to learn my ideas, to appreciate what I'm trying to do?" The guy replies, "Oh, yes. I'm afraid I'm much too busy." Deming tears the Texan's big business card in half and says, "Well, certainly was nice of you to stop in and see me." Deming turns away and that's the absolute end of their conversation.

In the NBC White Paper, Deming says that 85 percent of the problems in quality are caused not by workers, as many U.S. executives believed, but by management. His point is not that managers are bad, but rather that it is the systems that management has installed that produce bad quality. Therefore, for quality management to work, the systems must be changed—by top management.

At the beginning of the decade, most American managers, like the Texan in the story, were not convinced that they had to be personally responsible for quality. That changed by the middle of the '80s — but management still didn't know how to improve quality.

Vernal Anderson, as works manager for Tennessee Eastman Company, attended internal conferences of quality managers during that period trying to discover how to get better quality. "They told me that if you tell the division managers you want quality, it will happen," says Anderson. "I said that would be easy, but I didn't realize how hard it was going to be.

"Many of the men who worked for me didn't believe in quality management as a way to operate," continues Anderson. "You have to keep working on them. Once they got started, I did everything I could to help. I couldn't do it for them, but I could get the people they needed to train and coach." After years of experience in quality management, Anderson says, he's found that "the most important ingredient of success in quality is understanding that you have to work at quality and believe in it." Belief and action are most important at the senior levels of management. When Anderson ordered a $490,000 batch of out-of-spec chemicals burned, the action signaled his belief in quality to the entire organization.

The second focus of the quality movement was understanding people. Lloyd Dobyns, who narrated and wrote the script for *If Japan Can...Why Can't We?* says: "When we made the documentary we didn't understand the importance of employee participation. I realized its importance later when I did a video news report on unions for the Labor Department. It showed instances where management and labor worked together and dealt with each other on an equal basis," he says. "When I looked again at the original TV program, I realized the entire content was interwoven with worker involvement." A manager who has made many trips to Japan concurs: "The Japanese were trying to tell us all along that quality was people-based, but we wouldn't listen."

To get workers involved, U.S. companies began setting up teams to work on projects. The rationale was that participation leads to commitment and ultimately to "ownership" of the process. And if an employee feels he owns a process, then he'll care about the quality it produces.

American managers have found that saying you want to have teams isn't enough. Teams must be assigned projects and then empowered to do the work. Team facilitators must be trained to help teams work effectively. The team concept breaks down when managers interfere and when funds have not been invested for team training and development.

Dr. Gerald D. Sentell, president of Tennessee Associates International says that a paradigm shift is taking place within companies today.

Terry Stinson, president of Hamilton Standard Division of United Technologies corporation, says, "We've got more than 100 project teams at work throughout our business units — from shop floors to the executive offices. Most of our project teams are cross-functional. Employees are talking and cooperating, in some cases for the very first time, with employees from various departments throughout the company. And these teams are tallying tangible results.

"All of the people we have worked with, both in and out of house, have shared the same sense of accomplishment and pride that comes from working together effectively and from knowing that your voice counts, that your ideas are respected, and that you can make a difference. This has to be the greatest motivation available."

The quality movement's last major focus was measurement, specifically statistical process control. The reasoning was that before you could improve a manufacturing process, you had to be able to measure and chart each step in that process. Too often in U.S. manufacturing, decisions were being made by intuition. Data help you identify the real problem and make appropriate corrections. Furthermore, as Deming commented in the NBC show, "the gains that you get by statistical methods are gains that you get without new machinery, without new people." Manufacturing companies slowly began to understand that statistical process control is a fundamental tool, and control charts began to appear more frequently on the production line as operators learned how to measure the consistency of their own processes.

Today, customer satisfaction measurement has joined statistical process control as a valuable tool for improving quality. "Customer satisfaction measurement is vital to understanding how and where to focus efforts to improve both product and service quality," says Wendell Knox, executive vice president of Cambridge, Massachusetts-based Abt Associates. Quality experts most often define the customer as the person who receives your process. When you use that definition, you understand that there are internal and external customers. The concept that everyone is both a supplier and a customer has been a major change in American business thinking during the past decade.

Adding the customer to the quality equation has also changed the very definition of quality. "In the1980s Motorola Inc. thought that quality meant meeting the customers' expectations," said William Wiggenhorn, the company's corporate vice president, at a recent Conference Board conference on quality. "Then we changed that definition to say exceeding expectation," said Wiggenhorn. "Now we say that quality is anticipating customers' expectations — in all products and services."

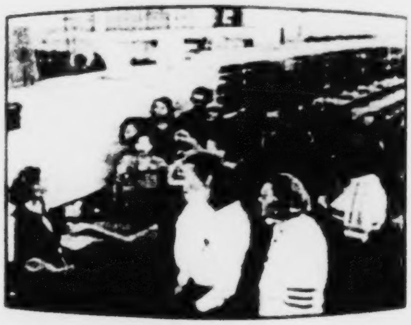
How much has the quality movement affected U.S. business? Surveys suggest that it's shifted the very culture of many companies. In 1986, the American Society for Quality Control surveyed some 600 managers. Ten percent listed some culture change as the most important ingredient in achieving quality. In 1988, the society repeated the survey with a different group of 600 managers. This time, 40 percent of the managers said culture change was the most important element in achieving quality.

Gerald Sentell, president of Tennessee Associates International, says there is a paradigm shift taking place. The culture changes involve overhauling the way suppliers, managers, and employees at all levels view their roles. Improving quality requires teamwork and a sense of personal responsibility for the goods one produces.

If the 1980s have been a time of increased quality awareness and experimentation, we can expect the '90s to be a decade of implementation. At the beginning of the '80s, interest in quality was usually found only with quality assurance people. Most understood quality as something you achieved with statistical process control. Today, when talking about the future, quality experts see more emphasis on the employee as the person who delivers quality. In manufacturing and services alike, the emphasis is on empowering people to work in teams.

As companies achieve greater success with their quality efforts, they will make a transition from an interest in quality to a concern about achieving continuous improvement. Achieving a set level of quality isn't enough to be world competitive because customers' requirements and competitors' capabilities keep changing. Only the companies that understand the treadmill of continuous improvement will survive.

U.S. management has shown that it is committed to improving quality; this year, for instance, some 175,000 copies of the Malcolm Baldrige National Quality Award brochure will be distributed. American managers have discovered that if Japan can, they can. Unfortunately, in too many industries America is playing catch-up. Running as fast as the leader won't be good enough to gain the world competitive positions that win customers.



Workers at Matsushita's plant in suburban Chicago discuss the company's plans at their weekly meeting with their foreman. Matsushita bought the factory in the late '70s from Motorola and turned the failing plant around.

* * *

The producers of *If Japan Can... Why Can't We?* have scheduled a sequel, which will air as a mini-series of three one-hour programs in September 1991. The program is tentatively titled *Quality or Else!* A companion book will be published by Houghton-Mifflin. The original show is available from Films Inc. (1-800-323-4222). ■

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DEMING IN HIS OWN WORDS

Ask W. Edwards Deming about the future of the American workplace, and he has a very simple comment: "What future?" Deming, 89 years old, remains pessimistic that U.S. business will make the changes he thinks necessary to compete. What follow are excerpts from a discussion with Deming.

What do you think is wrong with current management at corporations?

We are all born with intrinsic motivation, self-esteem, dignity, an eagerness to learn. Our present system of management crushes that all out.

How?

By replacing it with extrinsic motivation, by constantly judging people. We rank people with incentive pay, annual appraisals, production quotas. Judging people is not helpful. We can rank people according to height, and of six people, one would be tallest, one would be shortest. So what? You knew that before you started. That's the way business is run today. And it will get worse.

How will people know how they're performing if they are not evaluated?

People don't know how they're doing? All people ask for is a chance to work with pride and joy. Management has taken all of it out. Then you take quality out. Instead of working for the company, people compete with each other.

And competition is bad?

Of course it's bad. People then work for the grade. In school, they studied not to learn anything but for the grade.

Is that different in Japan?

Yes, it is. They work for the knowledge. And a child is never humiliated.

How about Japanese companies? Are they different?

Yes. The Japanese top management were willing to learn. They were willing to live by cooperation, not competition.

How great is the lead that Japan has over the U.S. companies? Is it widening in management practices?

I'm afraid so, although you find some practices developing in Japan that ought to worry them. At some companies, for example, there's differential pay. There's just a small amount of it. But the fact that it exists is what ruins people. If you were to get 50 cents more per month than I do, it would hurt me. If I got 50 cents more than you got, it's going to hurt you.

When a company comes to you for advice on how to improve their management, where do you start?

I don't say much. I just ask questions.

Such as?

Where do you hope to be five years from now? Most people can't answer the question. They don't have an aim. Or many times the aim is simply to stay ahead of a competitor, or at least not get too far behind. That's all people think about — competition.

So just staying ahead of the competitor is not an aim?

That's destructive.

But isn't competition where America is losing the battle?

That's right, that's where they are losing the battle. Because they're focusing on competition. They show diagrams and drawings to show how we're doing compared to the competition. We don't think much about anything else.

Whereas, they should focus on...?

Better service to the public and employees.

Are there any particular U.S. companies that are exemplary at doing what you're talking about?

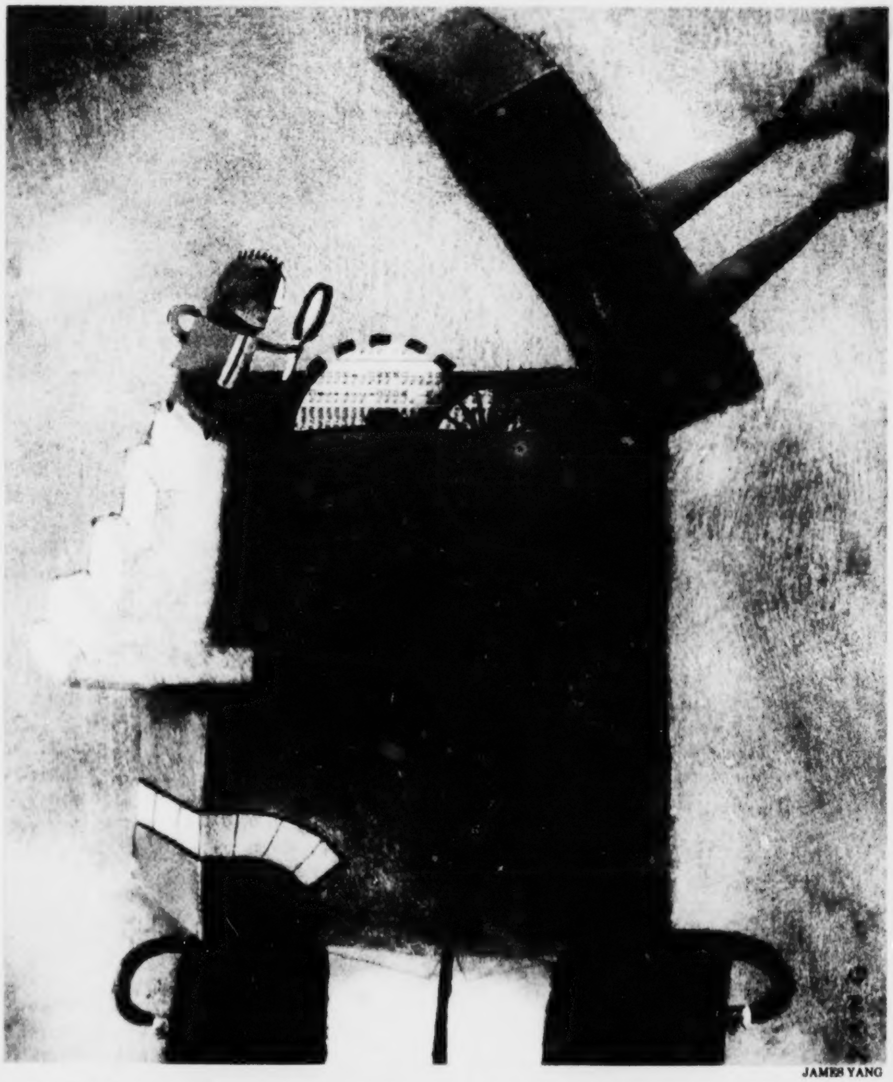
Well now and then there is a ray of hope in small companies.

Are there any exemplary large companies out there?

Not that I know of. But make one thing clear: Everybody is doing their best. And that's the trouble. Hard work and best effort — and doing it wrong. Without knowledge — there's no substitute for knowledge. And we don't have it. What's the aim of the school of business, for example? They teach students how business is conducted today and how to perpetuate it. Any wonder we're in trouble? They ought to be preparing students for the future, not for the past. ■

The Cost of Quality

Faced with hard times, business sours on 'Total Quality Management'


JAMES YANG

Well, maybe copying the Japanese isn't such a good idea after all. Consider Douglas Aircraft, the troubled subsidiary of McDonnell Douglas Corp. Plagued by poor earnings and richer competitors, the aircraft maker three years ago embraced "Total Quality Management," a Japanese import that had become the American business cult of the 1980s. TQM, as it is known, depends on small teams of workers—all the way down to the factory floor—to clean up poor procedures and work habits. That appealed to Douglas, which dispatched 8,000 employees in Long Beach, Calif., to two-week training seminars. They also spent weeks preparing for TQM on the job. But in less than two years, Douglas's version of quality management was a shambles, largely because the program's advocates hadn't anticipated the massive layoffs that poisoned labor-management relations. At Douglas, TQM appeared to be just one more hothouse Japanese flower never meant to grow on rocky American ground.

Until recently, TQM was seen as the doctrine that would rescue American business from flabby management techniques and shoddy products. Now many executives and their consultants have moved on to other methods, and while several firms remain true to TQM, it has stumbled badly over its early, inflated expectations. Florida Power & Light, winner of Japan's Deming Prize for quality management, has slashed its program because of worker complaints of excessive paperwork. The Wallace Co., a Houston oil-supply company that won the Commerce Department's Malcolm Baldrige National Quality Award, found the honor no protection against bad times—it has filed for Chapter 11 bankruptcy protection. Moreover, recent surveys show that most U.S. companies don't think much of TQM's impact on their ability to dash past competitors.

Of course, a handful of companies, like Xerox, Motorola, Federal Express and Harley-Davidson, have made TQM work, partly because such firms have the patience advocates say is essential. But such companies are exceptions in an American climate where management plans often have the shelf life of cottage cheese. "Managements expect it to be instant gratification, and that is one of the key reasons for failure," said Joe Lutzel, a quality-management executive with High Voltage Engineering in Milwaukee. In Japan, by contrast, managers enjoy easy relations with labor and a government more concerned with a stable economy and long-term growth.

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TQM grew from the postwar research and musings of American management consultants like W. Edwards Deming and Joseph Juran. It captivated the Japanese in the 1950s and returned to its birthplace as the hot boardroom fad of the early 1980s. TQM demands re-examination of creaky procedures and investigations of trouble spots by employee teams, a bottom-up approach that emphasizes patience and distrusts obvious answers. A good TQM company studies competitors and successful noncompetitors to reduce shortages, delays and defects.

Two rituals are sacred to the devout TQM congregation. First, managers must act as if they have signs on their backs: HOW ARE WE DOING? ANY COMPLAINTS? CALL 1-800-BLAMEUS. Richard C. Palermo, vice president for quality and transition at Xerox, has on his business card a three-question survey seeking reaction to Xerox products and services. The second ritual is the posse ploy. When something goes wrong, TQM executives recruit a few managers, clerks, assembly-line workers and even customers to ride off, find the problem and literally analyze it to death. For example: Douglas Chamberlain, field-service spares-operations manager at Xerox, spent months with a team investigating repair delays. Friends told him the solution was obvious: more parts on the repair trucks. But his team, after studying a horde of other companies, discovered a cheaper answer: using delivery services like Federal Express to rush the correct part to the customer.

Too perfect: But few companies are as wedded to the TQM mystique as Xerox. A survey by Rath & Strong of Lexington, Mass., released earlier this year graded companies on TQM efforts to improve market share, rein in costs and make customers happy; most rated D's and F's. In a survey of 500 companies by Boston's Arthur D. Little, a slim 36 percent said the process was having "a significant impact" on their ability to quash competitors. Some companies even complain that such management techniques cost more than they're worth. Tamara J. Erickson, a vice president at Arthur D. Little, says one company was so obsessed with improving its inventory process that it spent a fortune on a state-of-the-art computer system. The result: the wholesale cost of producing a 25-cent item soared to a ridiculous $2.89.

More than anything, U.S. companies have soured on TQM because it provides little protection against hard times. Patience and labor peace are the keys to making it work. Trouble comes when companies announce layoffs during economic slumps. Douglas Aircraft, for instance, hoped the system would win savings and lure back customers flirting with the European Airbus consortium, but another cost-cutting move—the elimination of 4,000 jobs in 1990—forced a premature end to TQM training classes in Long Beach and left many employees wondering if the company cared about their suggestions.

Some TQM programs go on short rations when a new cost-cutting CEO takes over. Kent Sterett, former director of Florida Power & Light's total-quality program, says new chief James Broadhead eliminated most jobs related to TQM because he "wasn't too sure about this quality stuff" allowing him to trim personnel. Broadhead, Sterett contends, didn't embrace TQM because "it tended to produce a significant number of recommendations coming up, which is the opposite of Broadhead's characteristic flow." Broadhead has said he stepped in because workers complained that TQM's "emphasis on indicators, charts, graphs, reports and meetings" took time from "serving customers and participating in community affairs."

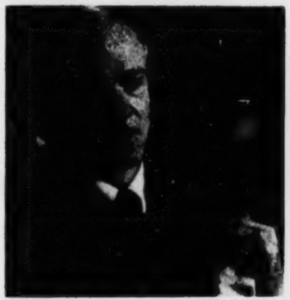
Long hauls: TQM devotees shrug off the recent setbacks. The system, they say, should produce results over the long haul. "Most Japanese [companies] began their quality-improvement efforts in the early 1950s and stuck with them religiously, although they didn't begin to see significant payoffs . . . until the late 1970s," says Jerry Bowles, author of "Beyond Quality."

Many with troubled TQM programs insist they are still believers. Wallace Co.'s chief, John W. Wallace, insists TQM kept many customers loyal despite his bankruptcy filing. And McDonnell Douglas, Douglas Aircraft's parent, has urged its ailing divisions to "move forward" with TQM despite cost-cutting.

Bowles, echoing other management consultants, says companies may have little choice. In this age of tough competition, he says, TQM is "the minimum requirement for staying in the game." But American firms may not truly embrace Total Quality Management until it makes their shareholders more money than it did the seminar organizers, consultants and book publishers, who reaped the biggest quality rewards of the 1980s.

JAY MATHEWS *with* PETER KATEL *in Miami*

SARAH FAWCETT


RED MORGAN

JANICE RUBIN

Back to the drawing board? *TQM guru Deming (top), Wallace Co. executives (right) and Florida Power & Light's Broadhead*

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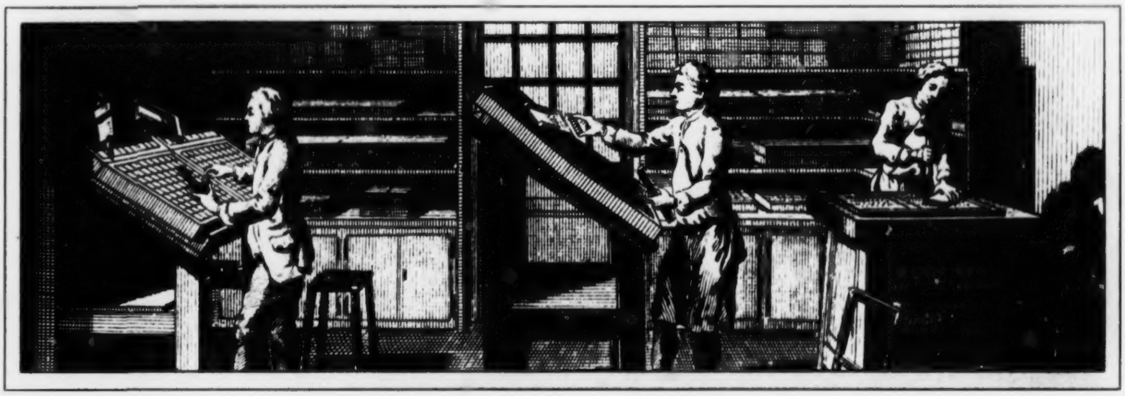
In the knowledge society, managers must prepare to abandon everything they know.

The New Society of Organizations



by Peter F. Drucker

Every few hundred years throughout Western history, a sharp transformation has occurred. In a matter of decades, society altogether rearranges itself – its world view, its basic values, its social and political structures, its arts, its key institutions. Fifty years later a new world exists. And the people born into that world cannot even imagine the world in which their grandparents lived and into which their own parents were born.

Our age is such a period of transformation. Only this time the transformation is not confined to Western society and Western history. Indeed, one of the fundamental changes is that there is no longer a "Western" history or a "Western" civilization. There is only world history and world civilization.

Whether this transformation began with the emergence of the first non-Western country, Japan, as a great economic power or with the first computer – that is, with information – is moot. My own candidate would be the GI Bill of Rights, which gave every American soldier returning from World War II the money to attend a university, something that would have made absolutely no sense only 30 years earlier at the end of World War I. The GI Bill of Rights and the enthusiastic response to it on the part of America's veterans signaled the shift to a knowledge society.

In this society, knowledge is *the* primary resource for individuals and for the economy overall. Land, labor, and capital – the economist's traditional factors of production – do not disappear, but they become secondary. They can be obtained, and obtained easily, provided there is specialized knowledge. At the same time, however, specialized

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knowledge by itself produces nothing. It can become productive only when it is integrated into a task. And that is why the knowledge society is also a society of organizations: the purpose and function of every organization, business and nonbusiness alike, is the integration of specialized knowledges into a common task.

If history is any guide, this transformation will not be completed until 2010 or 2020. Therefore, it is risky to try to foresee in every detail the world that is emerging. But what new questions will arise and where the big issues will lie we can, I believe, already discover with a high degree of probability.

In particular, we already know the central tensions and issues that confront the society of organizations: the tension created by the community's need for stability and the organization's need to destabilize; the relationship between individual and organization and the responsibilities of one to another; the tension that arises from the organization's need for autonomy and society's stake in the Common Good; the rising demand for socially responsible organizations; the tension between specialists with specialized knowledges and performance as a team. All of these will be central concerns, especially in the developed world, for years to come. They will not be resolved by pronunciamento or philosophy or legislation. They will be resolved where they originate: in the individual organization and in the manager's office.

Society, community, and family are all conserving institutions. They try to maintain stability and to prevent, or at least to slow, change. But the modern organization is a destabilizer. It must be organized for innovation and innovation, as the great Austro-American economist Joseph Schumpeter said, is "creative destruction." And it must be organized for the systematic abandonment of whatever is established, customary, familiar, and comfortable, whether that is a product, service, or process; a set of skills; human and social relationships; or the organization itself. In short, it must be organized for constant change. The organization's function is to put knowledge to work – on tools, products, and processes; on the design of work; on knowledge itself. It is the nature of knowledge that it changes fast and that today's certainties always become tomorrow's absurdities.

Skills change slowly and infrequently. If an ancient Greek stonecutter came back to life today and went to work in a stone mason's yard, the only change of significance would be the design he was asked to carve on the tombstones. The tools he would use are the same, only now they have electric batteries in the handles. Throughout history, the craftsman who had learned a trade after five or seven years of apprenticeship had learned, by age eighteen or nineteen, everything he would ever need to use during his lifetime. In the society of organizations, however, it is safe to assume that anyone with any knowledge will have to acquire new knowledge every four or five years or become obsolete.

This is doubly important because the changes that affect a body of knowledge most profoundly do not, as a rule, come out of its own domain. After Gutenberg first used movable type, there was practically no change in the craft of printing for 400 years – until the steam engine came in. The greatest challenge to the railroad came not from changes in railroading but from the automo-

Fig. 4.
Fig. 6.
Fig. 3.

bile, the truck, and the airplane. The pharmaceutical industry is being profoundly changed today by knowledge coming from genetics and microbiology, disciplines that few biologists had heard of 40 years ago.

And it is by no means only science or technology that creates new knowledge and makes old knowledge obsolete. Social innovation is equally important and often more important than scientific innovation. Indeed, what triggered the present worldwide crisis in that proudest of nineteenth-century institutions, the commercial bank, was not the computer or any other technological change. It was the discovery by nonbankers that an old but hitherto rather obscure financial instrument, commercial paper, could be used to finance companies and would thus deprive the banks of the business on which they had held a monopoly for 200 years and which gave them most of their income: the commercial loan. The greatest change of all is probably that in the last 40 years purposeful innovation – both technical and social – has itself become an organized discipline that is both teachable and learnable.

Nor is rapid knowledge-based change confined to business, as many still believe. No organization in the 50 years since World War II has changed more than the U.S. military. Uniforms have remained the same. Titles of rank have remained the same. But weapons have changed completely, as the Gulf War of 1991 dramatically demonstrated; military doctrines and concepts have changed even more drastically, as have the armed services' organizational structures, command structures, relationships, and responsibilities.

Similarly, it is a safe prediction that in the next 50 years, schools and universities will change more and more drastically than they have since they assumed their present form more than 300 years ago when they reorganized themselves around the printed book. What will force these changes is, in part, new technology, such as computers, videos, and telecasts via satellite; in part the demands of a knowledge-based society in which organized learning must become a lifelong process for knowledge workers; and in part new theory about how human beings learn.

For managers, the dynamics of knowledge impose one clear imperative: every organization has to build the management of change into its very structure.

On the one hand, this means every organization has to prepare for the abandonment of everything it does. Managers have to learn to ask every few years of every process, every product, every procedure, every policy: "If we did not do this already, would we go into it now knowing what we now know?" If the answer is no, the organization has to ask, "So what do we do now?" And it has to *do* something, and not say, "Let's make another study." Indeed, organizations increasingly will have to *plan* abandonment rather than try to prolong the life of a successful product, policy, or practice – something that so far only a few large Japanese companies have faced up to.

On the other hand, every organization must devote itself to creating the new. Specifically, every management has to draw on three systematic practices. The first is continuing improvement of everything the organization does, the process the Japanese call *kaizen*. Every artist throughout history has practiced kaizen, or organized, continuous self-improvement. But so far only the Japanese – perhaps because of their Zen tradition – have embodied it in the daily life and work of their business organizations (although not in their singularly change-resistant universities). The aim of kaizen is to improve a product or service so that it becomes a truly different product or service in two or three years' time.

> Managers must learn to ask every few years, "If we did not do this already, would we go into it now?"

Second, every organization will have to learn to exploit its knowledge, that is, to develop the next generation of applications from its own successes. Again, Japanese businesses have done the best with this endeavor so far, as demonstrated by the success of the consumer electronics manufacturers in developing one new product after another from the same American invention, the tape recorder. But successful exploitation of their successes is also one of the strengths of the fast-growing American pastoral churches.

Finally, every organization will have to learn to innovate – and innovation can now be organized and must be organized – as a systematic process. And then, of course, one comes back to abandonment, and the process starts all over. Unless this is done, the knowledge-based organization will very soon find itself obsolescent, losing performance capacity and with it the ability to attract and hold the skilled and knowledgeable people on whom its performance depends.

The need to organize for change also requires a high degree of decentralization. That is because the organization must be structured to make decisions quickly. And those decisions must be based on closeness – to performance, to the market, to technology, and to all the many changes in society, the environment, demographics, and knowledge that provide opportunities for innovation if they are seen and utilized.

All this implies, however, that the organizations of the post-capitalist society must constantly upset, disorganize, and destabilize the community. They must change the demand for skills and knowledges: just when every technical university is geared up to teach physics, organizations need geneticists. Just when bank employees are most proficient in credit analysis, they will need to be investment counselors. But also, businesses must be free to close factories on which local communities depend for employment or to replace grizzled model makers who have spent years learning their craft with 25-year-old whiz kids who know computer simulation.

Similarly, hospitals must be able to move the delivery of babies into a free-standing birthing center when the knowledge base and technology of obstetrics change. And we must be able to close a hospital altogether when changes in medical knowledge, technology, and practice make a hospital with fewer than 200 beds both uneconomical and incapable of giving first-rate care. For a hospital – or a school or any other community organization – to discharge its social function we must be able to close it down, no matter how deeply rooted in the local community it is and how much beloved, if changes in demographics, technology, or knowledge set new prerequisites for performance.

But every one of such changes upsets the community, disrupts it, deprives it of continuity. Every one is "unfair." Every one destabilizes.

Equally disruptive is another fact of organizational life: the modern organization must be *in* a community but cannot be *of* it. An organization's members live in a particular place, speak its language, send their children to its schools, vote, pay taxes, and need to feel at home there. Yet the organization cannot submerge itself in the community nor subordinate itself to the community's ends. Its "culture" has to transcend community.

It is the nature of the task, not the community in which the task is being performed, that determines the culture of an organization. The American civil servant, though totally opposed to communism, will understand immediately what a Chinese colleague tells him about bureaucratic intrigues in Beijing. But he would be totally baffled in his own Washington, D.C. if he were to sit in on a discussion of the next week's advertising promotions by the managers of the local grocery chain.

To perform its task the organization has to be organized and managed the same way as others of its type. For example, we hear a great deal about the differences in management between Japanese and American companies. But a large Japanese company functions very much like a large American company; and both function very much like a large German or British company. Likewise, no one will ever doubt that he or she is in a hospital, no matter where the hospital is located. The same holds true for schools and universities, for labor unions and research labs, for museums and opera houses, for astronomical observatories and large farms.

> Businesses must be free to close factories that communities depend on or replace grizzled employees with 25-year-old whiz kids.

In addition, each organization has a value system that is determined by its task. In every hospital in the world, health care is considered the ultimate good. In every school in the world, learning is considered the ultimate good. In every business in the world, production and distribution of goods or services is considered the ultimate good. For the organization to perform to a high standard, its members must believe that what it is doing is, in the last analysis, the one contribution to community and society on which all others depend.

In its culture, therefore, the organization will always transcend the community. If an organization's culture and the values of its community clash, the organization must prevail – or else it will not make its social contribution. "Knowledge knows no boundaries," says an old proverb. There has been a "town and gown" conflict ever since the first university was established more than 750 years ago. But such a conflict – between the autonomy the organization needs in order to perform and the claims of the community, between the values of the organization and those of the community, between the decisions facing the organization and the interests of the community – is inherent in the society of organizations.

The issue of social responsibility is also inherent in the society of organizations. The modern organization has and must have social power – and a good deal of it. It needs power to make decisions about people: whom to hire, whom to fire, whom to promote. It needs power to establish the rules and disciplines required to produce results: for example, the assignment of jobs and tasks and the establishment of working hours. It needs power to decide which factories to build where and which factories to close. It needs power to set prices, and so on.

And nonbusinesses have the greatest social power – far more, in fact, than business enterprises. Few organizations in history were ever granted the power the university has today. Refusing to admit a student or to grant a student the diploma is tantamount to debarring that person from careers and opportunities. Similarly, the power of the American hospital to deny a physician admitting privileges is the power to exclude that physician from the practice of medicine. The labor union's power over admission to apprenticeship or its control of access to employment in a "closed shop," where only union members can be hired, gives the union tremendous social power.

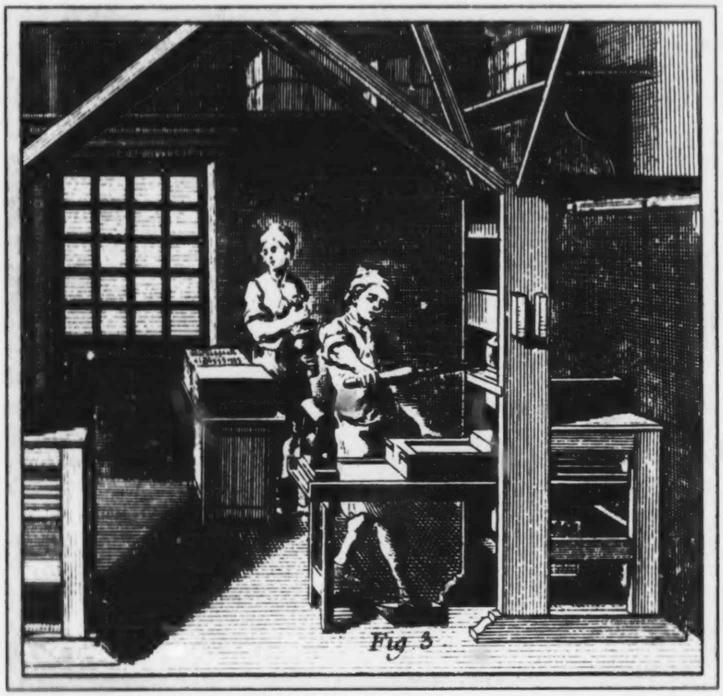
The power of the organization can be restrained by political power. It can be made subject to due process and to review by the courts. But it must be exercised by individual organizations rather than by political authorities. This is why post-capitalist society talks so much about social responsibilities of the organization.

It is futile to argue, as Milton Friedman, the American economist and Noble-laureate does, that a business has only one responsibility: economic performance. Economic performance is the *first* responsibility of a business. Indeed, a business that does not show a profit at least equal to its cost of capital is irresponsible; it wastes society's resources. Economic performance is the base without which a business cannot discharge any other responsibilities, cannot be a good employee, a good citizen, a good neighbor. But economic performance is not the *only* responsibility of a business any more than educational performance is the only responsibility of a school or health care the only responsibility of a hospital.

Unless power is balanced by responsibility, it becomes tyranny. Furthermore, without responsibility power always degenerates into nonperformance, and organizations must perform. So the demand for socially responsible organizations will not go away but rather widen.

Fortunately, we also know, if only in rough outline, how to answer the problem of social responsibility. Every organization must assume full responsibility for its impact on employees, the environment, customers, and whomever and whatever it touches. That is its social responsibility. But we also know that society will increasingly look to major organizations, for-profit and nonprofit alike, to tackle major social ills. And there we had better be watchful because good intentions are not always socially responsible. It is irresponsible for an organization to accept – let alone to pursue – responsibilities that would impede its capacity to perform its main task and mission or to act where it has no competence.

Organization has become an everyday term. Everybody nods when somebody says, "In our organization, everything should revolve around the customer" or "In this organization, they never forget a mistake." And most, if not all, social tasks in every developed country are performed in and by an organization of



one kind or another. Yet no one in the United States – or anyplace else – talked of "organizations" until after World War II. *The Concise Oxford Dictionary* did not even list the term in its current meaning in the 1950 edition. It is only the emergence of management since World War II, what I call the "Management Revolution," that has allowed us to see that the organization is discrete and distinct from society's other institutions.

Unlike "community," "society," or "family," organizations are purposefully designed and always specialized. Community and society are defined by the bonds that hold their members together, whether they be language, culture, history, or locality. An organization is defined by its task. The symphony orchestra does not attempt to cure the sick; it plays music. The hospital takes care of the sick but does not attempt to play Beethoven.

Indeed, an organization is effective only if it concentrates on one task. Diversification destroys the performance capacity of an organization, whether it is a business, a labor union, a school, a hospital, a community service, or a house of worship. Society and community must be multidimensional; they are environments. An organization is a tool. And as with any other tool, the more specialized it is, the greater its capacity to perform its given task.

Because the modern organization is composed of specialists, each with his or her own narrow area of expertise, its mission must be crystal clear. The organization must be single-minded, or its members will become confused. They will follow their own specialty rather than apply it to the common task. They will each define "results" in terms of their own specialty and impose its values on the organization. Only a focused and common mission will hold the organization together and enable it to produce. Without such a mission, the organization will soon lose credibility and, with it, its ability to attract the very people it needs to perform.

> Every organization is in competition for its most essential resource: qualified, knowledgeable people.

It can be all too easy for managers to forget that joining an organization is always voluntary. De facto there may be little choice. But even where membership is all but compulsory – as membership in the Catholic church was in all the countries of Europe for many centuries for all but a handful of Jews and Gypsies – the fiction of voluntary choice is always carefully maintained: the godfather at the infant's baptism pledges the child's voluntary acceptance of membership in the church.

Likewise, it may be difficult to leave an organization – the Mafia, for instance, a big Japanese company, the Jesuit order. But it is always possible. And the more an organization becomes an organization of knowledge workers, the easier it is to leave it and move elsewhere. Therefore, an organization is always in competition for its most essential resource: qualified, knowledgeable people.

All organizations now say routinely, "People are our greatest asset." Yet few practice what they preach, let alone truly believe it. Most still believe, though perhaps not consciously, what nineteenth-century employers believed: people need us more than we need them. But, in fact, organizations have to market membership as much as they market products and services – and perhaps more. They have to attract people, hold people, recognize and reward people, motivate people, and serve and satisfy people.

The relationship between knowledge workers and their organizations is a distinctly new phenomenon, one for which we have no good term. For example, an employee, by definition, is someone who gets paid for working. Yet the largest single group of "employees" in the United States is comprised of the millions of men and women who work several hours a week without pay for one or another nonprofit organization. They are clearly "staff" and consider themselves as such, but they are unpaid volunteers. Similarly, many people who work as employees are not employed in any legal sense because they do not work for someone else. Fifty or sixty years ago, we would have spoken of these people (many, if not most, of whom are educated professionals) as "independent"; today we speak of the "self-employed."

These discrepancies – and they exist in just about every language – remind us why new realities often demand new words. But until such a word emerges, this is probably the best definition of employees in the post-capitalist society: people whose ability to make a contribution depends on having access to an organization.

As far as the employees who work in subordinate and menial occupations are concerned – the salesclerk in the supermarket, the cleaning woman in the hospital, the delivery-truck driver – the consequences of this new definition are small. For all practical purposes, their position may not be too different from that of the wage earner, the "worker" of yesterday, whose direct descendants they are. In fact, this is precisely one of the central social problems modern society faces.

But the relationship between the organization and knowledge workers, who already number at least one-third and more likely two-fifths of all employees, is radically different, as is that between the organization and volunteers. They can work only because there is an organization, thus they too are dependent. But at the same time, they own the "means of production"–their knowledge. In this respect, they are independent and highly mobile.

Knowledge workers still need the tools of production. In fact, capital investment in the tools of the knowledge employee may already be higher than the capital investment in the tools of the manufacturing worker ever was. (And the social investment, for example, the investment in a knowledge worker's education, is many times the investment in the manual worker's education.) But this capital investment is unproductive unless the knowledge worker brings to bear on it the knowledge that he or she owns and that cannot be taken away. Machine operators in the factory did as they were told. The machine decided not only what to do but how to do it. The knowledge employee may well need a machine, whether it be a computer, an ultrasound analyzer, or a telescope. But the machine will not tell the knowledge worker what to do, let alone how to do it. And without this knowledge, which belongs to the employee, the machine is unproductive.

Further, machine operators, like all workers throughout history, could be told what to do, how to do it, and how fast to do it. Knowledge workers cannot be supervised effectively. Unless they know more about their specialty than anybody else in the organization, they are basically useless. The marketing manager may tell the market researcher what the company needs to know about the design of a new product and the market segment in which it should be positioned. But it is the market researcher's job to tell the president of the company what market research is needed, how to set it up, and what the results mean.

During the traumatic restructuring of American business in the 1980s, thousands, if not hundreds of thousands, of knowledge employees lost their jobs. Their companies were acquired, merged, spun off, or liquidated. Yet within a few months, most of them found new jobs in which to put their knowledge to work. The transition period was painful, and in about half the cases, the new job did not pay quite as much as the old one did and may not have been as enjoyable. But the laid-off technicians, professionals, and managers found they had the "capital," the knowledge: they owned the means of production. Somebody else, the organization, had the tools of production. The two needed each other.

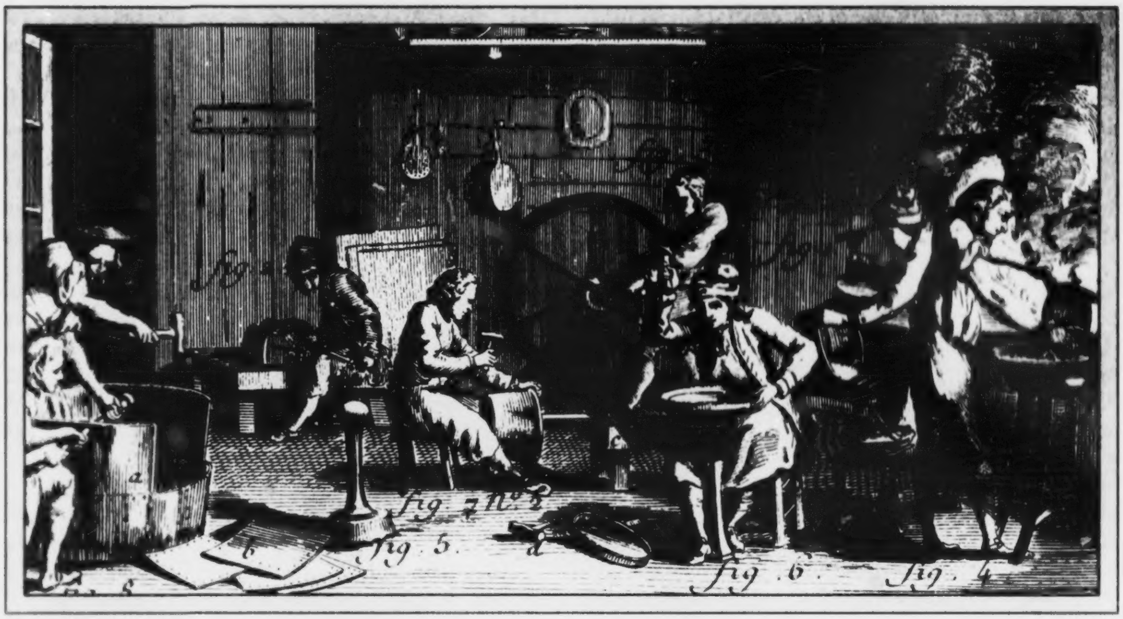
One consequence of this new relationship–and it is another new tension in modern society–is that loyalty can no longer be obtained by the paycheck. The organization must earn loyalty by proving to its knowledge employees that it offers them exceptional opportunities for putting their knowledge to work. Not so long ago we talked about "labor." Increasingly we are talking about "human resources." This change reminds us that it is the individual, and especially the skilled and knowledgeable employee, who decides in large measure what he or she will contribute to the organization and how great the yield from his or her knowledge will be.

Because the modern organization consists of knowledge specialists, it has to be an organization of equals, of colleagues and associates. No knowledge ranks higher than another; each is judged by its contribution to the common task rather than by any inherent superiority or inferiority. Therefore, the modern organization cannot be an organization of boss and subordinate. It must be organized as a team.

There are only three kinds of teams. One is the sort of team that plays together in tennis doubles. In that team–and it has to be small–each member adapts himself or herself to the personality, the skills, the strengths, and the weaknesses of the other member or members. Then there is the team that plays European football or soccer. Each player has a fixed position; but the whole team moves together (except for the goalie) while individual members retain their relative positions. Finally, there is the American baseball team – or the orchestra – in which all the members have fixed positions.

At any given time, an organization can play only one kind of game. And it can use only one kind of team for any given task. Which team to use or game to play is one of the riskiest decisions in the life of an organization. Few things are as difficult in an organization as transforming from one kind of team to another.

Traditionally, American industry used a baseball-style team to produce a new product or model. Research did its work and passed it on to engineering. Engineering did its work and passed it on to manufacturing. Manufacturing did its work and passed it on to marketing. Accounting usually came in at the manufacturing phase. Personnel usually came in only when there was a true crisis – and often not even then.



Then the Japanese reorganized their new product development into a soccer team. In such a team, each function does its own work, but from the beginning they work together. They move with the task, so to speak, the way a soccer team moves with the ball. It took the Japanese at least 15 years to learn how to do this. But once they had mastered the new concept, they cut development time by two-thirds. Where traditionally it has taken 5 years to bring out a new automobile model, Toyota, Nissan, and Honda now do it in 18 months. This, as much as their quality control, has given the Japanese the upper hand in both the American and European automobile markets.

Some American manufacturers have been working hard to reorganize their development work according to the Japanese model. Ford Motor Company, for instance, began to do so in the early 1980s. Ten years later, in the early 1990s, it has made considerable progress – but not nearly enough to catch up with the Japanese. Changing a team demands the most difficult learning imaginable: unlearning. It demands giving up hard-earned skills, habits of a lifetime, deeply cherished values of craftsmanship and professionalism, and – perhaps the most difficult of all – it demands giving up old and treasured human relationships. It means abandoning what people have always considered "our community" or "our family."

But if the organization is to perform, it must be organized as a team. When modern organizations first arose in the closing years of the nineteenth century, the only model was the military. The Prussian Army was as much a marvel of organization for the world of 1870 as Henry Ford's assembly line was for the world of 1920. In the army of 1870, each member did much the same thing, and the number of people with any knowledge was infinitesimally small. The army was organized by command-and-control, and business enterprise as well as most other institutions copied that model. This is now rapidly changing. As more and more organizations become information-based, they are transforming themselves into soccer or tennis teams, that is, into responsibility-based organizations in which every member must act as a responsible decision maker. All members, in other words, have to see themselves as "executives."

Even so, an organization must be managed. The management may be intermittent and perfunctory, as it is, for instance, in the Parent-Teacher Association at a U.S. suburban school. Or management may be a full-time and demanding job for a fairly large group of people, as it is in the military, the business enterprise, the labor union, and the university. But there have to be people who make decisions or nothing will ever get done. There have to be people who are accountable for the organization's mission, its spirit, its performance, its results. Society, community, and family may have "leaders," but only organizations know a "management." And while this management must have considerable authority, its job in the modern organization is not to command. It is to inspire.

The society of organizations is unprecedented in human history. It is unprecedented in its performance capacity both because each of its constituent organizations is a highly specialized tool designed for one specific task and because each bases itself on the organization and deployment of knowledge. It is unprecedented in its structure. But it is also unprecedented in its tensions and problems. Not all of these are serious. In fact, some of them we already know how to resolve – issues of social responsibility, for example. But there are other areas where we do not know the right answer and where we may not even be asking the right questions yet.

There is, for instance, the tension between the community's need for continuity and stability and the organization's need to be an innovator and destabilizer. There is the split between "literati" and "managers." Both are needed: the former to produce knowledge, the latter to apply knowledge and make it productive. But the former focus on words and ideas, the latter on people, work, and performance. There is the threat to the very basis of the society of organizations – the knowledge base – that arises from ever greater specialization, from the shift from knowledge to *knowledges*. But the greatest and most difficult challenge is that presented by society's new pluralism.

For more than 600 years, no society has had as many centers of power as the society in which we now live. The Middle Ages indeed knew pluralism. Society was composed of hundreds of competing and autonomous power centers: feudal lords and knights, exempt bishoprics, autonomous monasteries, "free" cities. In some places, the Austrian Tyrol, for example, there were even "free peasants," beholden to no one but the Emperor. There were also autonomous craft guilds and transnational trading leagues like the Hanseatic Merchants and the merchant bankers of Florence, toll and tax collectors, local "parliaments" with legislative and tax-raising powers, private armies available for hire, and myriads more.

Modern history in Europe – and equally in Japan – has been the history of the subjugation of all competing centers of power by one central authority, first called the "prince," then the "state." By the middle of the nineteenth century, the unitary state had triumphed in every developed country except the United States, which remained profoundly pluralistic in its religious and educational organizations. Indeed, the abolition of pluralism was the "progressive" cause for nearly 600 years.

But just when the triumph of the state seemed assured, the first new organization arose – the large business enterprise. (This, of course, always happens when the "End of History" is announced.) Since then, one new organization after another has sprung up. And old organizations like the university, which in Europe seemed to have been brought safely under the control of central governments, have become autonomous again. Ironically, twentieth-century totalitarianism, especially communism, represented the last desperate attempt to save the old progressive creed in which there is only one center of power and one organization rather than a pluralism of competing and autonomous organizations.

That attempt failed, as we know. But the failure of central authority, in and of itself, does nothing to address the issues that follow from a pluralistic society. To illustrate, consider a story that many people have heard or, more accurately, misheard.

During his lifetime, Charles E. Wilson was a prominent personality in the United States, first as president and chief executive officer of General Motors, at that time the world's largest and most successful manufacturer, then as secretary of defense in the Eisenhower administration. But if Wilson is remembered at all today it is for something he did *not* say: "What is good for General Motors is good for the United States." What Wilson actually said in his 1953 confirmation hearings for the Defense Department job was: "What is good for the United States is good for General Motors."

> Since the Middle Ages, no society has had as many centers of power as the one in which we now live.

Wilson tried for the remainder of his life to correct the misquote. But no one listened to him. Everyone argued, "If he didn't say it, he surely believes it – in fact he *should* believe it." For as has been said, executives in an organization – whether business or university or hospital or the Boy Scouts – must believe that its mission and task are society's most important mission and task as well as the foundation for everything else. If they do not believe this, their organization will soon lose faith in itself, self-confidence, pride, and the ability to perform.

The diversity that is characteristic of a developed society and that provides its great strength is only possible because of the specialized, single-task organizations that we have developed since the Industrial Revolution and, especially, during the last 50 years. But the feature that gives them the capacity to perform is precisely that each is autonomous and specialized, informed only by its own narrow mission and vision, its own narrow values, and not by any consideration of society and community.

Who will take care of the Common Good? Who will define it?

Therefore, we come back to the old–and never resolved – problem of the pluralistic society: Who takes care of the Common Good? Who defines it? Who balances the separate and often competing goals and values of society's institutions? Who makes the trade-off decisions and on what basis should they be made?

Medieval feudalism was replaced by the unitary sovereign state precisely because it could not answer these questions. But the unitary sovereign state has now itself been replaced by a new pluralism – a pluralism of function rather than one of political power – because it could neither satisfy the needs of society nor perform the necessary tasks of community. That, in the final analysis, is the most fundamental lesson to be learned from the failure of socialism, the failure of the belief in the all-embracing and all-powerful state. The challenge that faces us now, and especially in the developed, free-market democracies such as the United States, is to make the pluralism of autonomous, knowledge-based organizations redound both to economic performance and to political and social cohesion.

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TQM

LESSONS WE CAN LEARN FROM INDUSTRY

BY STEVEN E. BRIGHAM

No other management philosophy in recent memory has captured the fancy of American business like Total Quality Management (TQM). The shining lights of U.S. industry – Motorola, Proctor and Gamble, and Xerox – witness the success that can come with effective TQM practice. The momentum of TQM has been so contagious that it swept through manufacturing, then service and health care, and now comes to government and education. Yet TQM's standing in business circles has been sullied recently by critical press reports in *The Wall Street Journal, Newsweek,* and *The Economist.* Much of the criticism originates from surveys conducted by Arthur D. Little, A. T. Kearney, Ernst and Young, McKinsey and Company, and Rath and Strong that have reached similar conclusions: in more cases than not, TQM has failed to produce its promised results. Before higher education proceeds further with its infatuation with TQM, it will do well to ponder the mistakes and accomplishments of previous practitioners, thereby increasing the odds of benefitting from the intelligence and holism of TQM.

STEVEN E. BRIGHAM is director of the Continuous Quality Improvement Project at the American Association for Higher Education.

The surveys do *not* conclude that the TQM philosophy is worthless or even seriously flawed; they suggest instead that the implementation of TQM has been deficient, even erroneous. Only 36 percent of those responding to an Arthur D. Little survey could report that TQM was having a "significant impact." Similarly, British firm A. T. Kearney found that only 20 percent of those surveyed believed TQM had produced "tangible results." Yet, despite these discouraging figures, TQM remains, according to many experts, *a minimum requirement for staying in business*.

Total Quality Management has its roots in statistical process control (SPC); it was originally a manufacturing management model. When W. Edwards Deming and Joseph Juran traveled to Japan after World War II to help rebuild that country's infrastructure, what they taught then did not look like what we now call TQM. Like any enduring species, TQM has evolved, matured, and redefined itself. There is no one approach to TQM; the actual practice of "quality" looks very different across manufacturing concerns, and more different still in service industries and health care. When it is applied to educational institutions, and particularly to learning, "TQM" will diverge even further from its original manufacturing form. Slavish devotion to the earlier precepts of Deming or Crosby will, in and of itself, not be enough; higher education will need its own frameworks for the management of quality.

This article, then, will highlight, from the findings in TQM-related literature, the ways in which other industries have encountered success or failure in fashioning their versions of TQM. The conclusions that follow reflect points of agreement across survey findings, industry reports, and the stories of practitioners, starting with the common mistakes made in implementing TQM.

What's Gone Wrong

Lack of leadership. Many companies encounter early trouble because, having heard the TQM commotion and excitement, they leap in with little understanding of what total quality entails and of the ways it differs from the traditional management paradigm. The troubles intensify when the leaders of these organizations offer only passive commitment to quality, delegating the fundamental duties to lower levels of management. This often results in further misunderstanding of changes required for TQM, both in the imprudent selection of "off-the-shelf" TQM training and implementation programs and in an over-reliance on outside consultants for direction and facilitation. Without executive leadership setting the strategy and championing the cause, TQM efforts suffer, moving in fits and starts that ultimately can drown out even those units or teams that have produced impressive results.

Middle management muddle. Another reason TQM dies is that managers and supervisors either don't understand or don't welcome the new roles they must play. The old management mindset encouraged, even implicitly rewarded, the advancement and fortification of individual fiefdoms. Although such behavior is antithetical to TQM, without countermeasures it will persist, subverting the change process. Middle managers are often the forgotten link in TQM implementation, left out of the planning phases but then commanded to learn an intimidating array of new behaviors; when they receive little or no training for these new skills and behaviors, or subsequent reward for their practice, matters are made worse.

Misunderstanding of participation. Just as managers have to learn new behaviors and skills, so too do employees. One mistake, however, is to bring employees in too early, providing them with initial training in TQM tools and philosophy but not with an immediate opportunity to use them. Because most employees will not participate until months (or years) later, they'll need to be trained again, wasting the initial investment.

Yet even a prompt delegation of employees and managers to teams does not prevent these teams from bogging down. This happens, observers report, because of weak group facilitation and maintenance skills, poor definition of team objectives, an open-ended time frame for project completion, and an overburdensome workload for participants with other organizational commitments. When teams flounder, motivation wanes, TQM cynics burgeon, and quality efforts quickly lose steam.

Obsession with process. If you focus on the basic processes of the organization, some TQM champions argue, the results will take care of themselves. But the danger of such a focus is that companies take their eye off the results that the process improvements are supposed to yield. Authors Shaffer and Thomson cite, in the *Harvard Business Review*, a not-so-uncommon case in which one manufacturing company "launched almost 100 quality improvement teams as a way to 'get people involved.' These teams produced scores of recommendations for process changes. The result was stacks of work orders piling up in maintenance, production engineering, and systems departments—more than any of these groups were capable of responding to. . . . Ignoring mounting evidence that the process was actually counterproductive, they determined to get even more teams established." When expected results are not tied to the processes marked for improvement, the costs run high with very little to show for it.

Failure to include the customer. Finally, many companies have concentrated all their efforts on improving internal processes with little or no regard for the relationships between those processes and the organization's ultimate customers. Untold energy gets spent on religiously improving processes that are obsolete, trivial, or irrelevant to the customer's needs. A reduced cycle time for the issuance of employee parking permits can hardly be claimed a "success" if the absence of visitor parking is all the while turning away customers.

It should not surprise us that TQM has met with limited success elsewhere; it flips many time-worn management concepts upside-down. It ultimately wants to flatten out the organization, advance decision making at the bottom rungs of the organization, and embrace both customers and suppliers as part of the organization. As demanding as each of these steps might be individually, they can be daunting when combined.

Even so, many companies *have* achieved

dramatic, positive results from TQM. In the next section, I will explore some of the strategies and approaches that have achieved these results. Once again, my comments are drawn from many sources, and I focus on the most common recommendations made.

Does It Work?

The best evidence to date that TQM "works" comes from a May, 1991 U.S. General Accounting Office (GAO) report that examines the impact of TQM on the performance of U.S. companies that were among the highest-scoring applicants in 1988 and 1989 for the Malcolm Baldrige Award. In nearly all cases, these companies "achieved better employee relations, higher productivity, greater customer satisfaction, increased market share, and improved profitability." How did they do this? According to the GAO study, their approaches were customized and "homegrown" but shared common features, including a focus on customers' requirements, a strategic effort throughout the organization to promote quality improvement, and the training and involvement of employees, in all cases with senior management leading the way.

Another useful report is the International Quality Study (IQS)—a three-year inquiry conducted jointly by Ernst and Young and the American Quality Foundation—which emphasizes the importance of timing and usage of practices. First, it debunks the myth of a "universally beneficial set of practices for all organizations." It reports that certain practices potentially beneficial for beginners tend to be of little use to quality veterans later on. Advanced TQM practices like "world-class" benchmarking might actually damage the efforts of a quality novice. Its advice to those new to the quality game: concentrate on the *basics*, promote *teamwork*, benchmark immediate *competitors* only, and become more responsive to the *customer*.

Looking across the other reports, the recommendations fall in two categories, one having to do with organizational strategy, the other with implementation tips.

SLAVISH DEVOTION TO THE EARLIER PRECEPTS OF DEMING OR CROSBY WILL NOT BE ENOUGH; HIGHER EDUCATION WILL NEED ITS OWN FRAMEWORKS FOR THE MANAGEMENT OF QUALITY.

Strategy

The Health Care Advisory Board (HCAB), in its 1992 report, *TQM: 14 Tactics for Improving the Quality Process*, maintains that the "single most important thing a hospital can do to leverage TQM results is to improve project selection . . . and second . . . tightly focus organizational improvement process on just a few key processes." A. T. Kearney, in *TQM: A Business Process Perspective*, reports survey evidence showing that "although bottom-up initiatives have been successful in isolated factories and divisions, corporations have been transformed only from the top, by executives who 'walk the talk.' " And, Arthur D. Little, in an early-1992 survey, found that a focus in training employees, problem solving, and incremental improvement in numerous but scattered areas around the company—in their words, the "essence" of TQM today—in and of itself "won't result in the significant improvement needed to become . . . a high performance business."

Each of these examples highlights a glaring oversight in many organizations: the failure up-front to develop a strategic plan for quality tied to the long-term business plan. TQM is most effective when it is a central, planned part of the organization's forward thrust, a thrust that requires top-level leadership, that's built around an intense commitment to customers, and that emphasizes big improvements in "core" processes.

For any endeavor, early momentum can mean the difference between a rapid sequence of successes that builds sustained momentum and a mere plodding along, characterized by random improvement and no palpable excitement. In the case of TQM, the reports say, this early momentum has to be triggered by top management and follow directly from their carefully drawn plans. In the companies studied in the GAO report, it was customary for senior managers to organize and lead the implementation of TQM personally.

Implementation only began, however, after quality improvement had been integrated into strategic and operational planning. Organizations start this planning process by conducting a thorough diagnosis of the organization (this can often take several months), with data drawn from customer groups, employees, and middle management to assess current organizational practices. Values, mission, and vision statements are also reworked. Finally, a "strategic quality plan" emerges that sets company-wide performance goals and targets critical processes for first address. Two crucial factors that leaders must confront are the shift to an intensive focus on customer needs and expectations and a candid selection and assessment of critical processes that keep an organization in business.

Very simply, too often, too little attention is paid at the outset to the customer. Most organizations have been designed as much to meet internal bureaucratic needs as to meet those of customers, and most organizations *assume* they already know what customers need without verifying those assumptions. In these cases, appropriate strategy gets shortchanged, and the resultant bustle of activity generates a flurry of improvements, few of which really matter to the customer. Karl Albrecht, in *The Only Thing that Matters*, argues that, in contrast, "customer-centered companies . . . see the customer as the starting point, listening post, and ultimate arbiter for everything they do. They start with the customer's needs and expectations—the attributes that are desired. Then they develop and evolve products or services to satisfy them." A successful TQ strategy, then, targets the teams and projects that will achieve tangible results that customers *have already helped to define.*

According to an A. T. Kearney report, "newcomers to TQM can benefit by starting with the right business processes: those that are key to competitiveness." Appropriate selection of the critical processes—those having the highest impact on customers and other organizational stakeholders—requires, as mentioned above, the completion of an accurate, candid, and comprehensive diagnosis of the organization's current reality. These identified "core" processes (no more than three or four) are the fount from which all other organizational processes cascade; yet, having identified these processes, an organization still must be patient with its restructuring while it attempts to meet its newly defined goals and mission. Thus, the pilot projects that are selected during the planning stages must have "high probability for quick success and meaningful impact," according to the HCAB. These early successes on substantial issues broadcast the importance and value of TQM.

Integrating TQM into the strategic planning process is crucial, then, to its short- and long-term success. It prepares the organization to get started on the right foot and creates a new framework in which the organization, over time, can transform the way it performs its work.

Implementation

Getting the strategy right is only half the struggle; the best of plans don't ensure good implementation. Effective implementation has three cornerstones: employee involvement, the improvement of processes linked to results, and an enduring focus on the customer.

Employee involvement. TQM literature nearly unanimously professes the virtue of employee participation. Organizations seize upon this idea—with genuinely good intentions—by trying to include everybody, immediately. Yet, as mentioned above, this seldom works. Indeed, some consultants suggest refraining from announcing TQM to the entire organization at the outset. Longtime quality consultant Brian Joiner stresses, in an August, 1992 issue of *Incentive*, that employees, even if informed of quality efforts early on, should only become involved incrementally.

AUTHOR
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The HCAB report is the most specific in its talk about teams, the foundation of employee involvement. Its evaluators often found TQM teams languishing in confusion and inertia; an antidote the board strongly recommends is that organizational leaders assign deadlines, clearly define a project focus for teams, set high goals to spur "breakthrough" results, and help with data collection and analysis—all this until teams become accustomed to more autonomous teamwork. Meanwhile, employee teams are empowered by the new directive to generate ideas, make decisions, and effect organizational improvement.

As an organization proceeds with TQM, new ideas and responsibility-taking come to be generated throughout the organization; successes build confidence for both management and employees that the new approaches will work. In the early and transitional stages of TQM, however, top-down management practices will still be useful and relevant.

Processes and results. Terry Walker reports in *National Productivity Review* that in TQM programs that are performing poorly, "nearly all the process goals are being met, but the result goals are not." Whereas it was once near-anathema to suggest any focus on results when implementing TQM, now firms find it best to strike a healthy balance between processes *and* results. Goal-setting is essential, according to the HCAB, because it forces teams to stretch and innovate toward big results. In the absence of goal-setting, teams have little context in which to judge the degree of improvement needed. Author upon consultant upon report urges to avoid spending precious organizational energy on activities that don't impact quality, productivity, or customer satisfaction.

Customer focus. If customer focus is important during strategic planning, it is even more so during implementation. For organizations unaccustomed to soliciting customer input and feedback, building this into the everyday business can be much more bewildering than incorporating it into a one-shot strategic planning activity; involving uncertainty about what questions to ask, of whom, and about how to later use that feedback to cause process improvement, simplification, or innovation. In the GAO study, companies reported using focus groups, opinion surveys, and face-to-face meetings to understand customer needs; they created matrix charts to specify the relationships between critical processes and ships between critical processes and customer satisfaction, charts that allowed employees to clarify how their jobs added value to the customer. The IQS considered cutomer input critical to a quality-novice organization, particularly when done face-to-face. As that company evolves to a higher-performance organization, its customer-input practices become more sophisticated. For example, while the novice might focus on gathering information to improve current products or reduce the impact of current problems, the higher performer gathers customer

A New Aim

James worked on a conveyor belt. He made and inspected widgets. He worked at the end of the line where paper trays were made for copiers. His job was to do final assembly and to inspect. Each day, about 450 paper trays came to James. He knew his job well. He carefully inspected and tested each tray to make sure it was made to acceptable specifications. Any tray that didn't meet standards, he rejected. Those that were exceptional, he marked "special" and they were used on demonstration models.

He knew his job was important. He knew that customers expected quality and that a copier wouldn't be a quality copier if the paper tray didn't work. And the specifications were the way to ensure it worked. He knew that about 16 percent of the trays didn't meet specifications, and that about 10 percent were special. It was a guide his supervisor used to make sure that James was doing his job well. Not too many, not too few. Each day James did that, confident that he was doing quality work for the customers.

James never actually saw the completed copiers. He never saw how the paper trays worked in the end. He wasn't sure how they were assembled to the copier. And he never saw a customer use one. He also never saw the steps to make a tray before it got to him. He didn't know what Hank, Ivan, and Elaine did in steps before him. And he didn't know what caused the trays to be different sizes and strengths.

Then one day, a new manager named Hannah came to the company. She said, "What if all paper trays met specifications?" James laughed. New manager. Didn't understand that if he passed all the trays, some of the copiers wouldn't work and the customers would be mad and not buy their machines anymore.

"No," Hannah explained. "We won't change the specifications. We'll improve the process, so that all trays meet specifications."

James couldn't do anything about that. The trays were nearly done when they came to him. She explained that they would have to study the whole process of making the trays, from design through completion, step by step.

So Hank, Ivan, Elaine, James, and Hannah got together and worked on the whole process. They found out what steps in the process resulted in variation on the measures and strength. They made improvements and reduced the number of rejected trays to .2 percent. Then they went back to work. This time they raised specifications. The new aim was to try to make all trays "special."

A new aim. A new paradigm. A new copier company.

TQM ON CAMPUS

QUALITY QUESTIONS

Melany was a college professor. She taught Rural Sociology 417 to third- and fourth-year students. Every year, about 90 students came through on her conveyor belt. Her job was to add knowledge and test the kids to make sure they met minimum standards. Any student below minimum standards did not graduate. Any student who excelled was labeled "exceptional" and given honors and special opportunities.

She knew her job well. She knew that society and those who hired graduates expected them to have a minimum standard of knowledge. And tests and grades were a way to ensure that. She knew that about 16 percent of the students in her university in any year didn't make it, and about 10 percent were given honors. It was a way she was evaluated on how well she was doing. Not too lenient. Not too tough.

Each year Melany did this, she was confident she was doing her job to provide for an educated society. She never saw what happened to the students after her class, whether or not they graduated, got a job, or how they did in their jobs. She didn't know whether or how they used their knowledge in their lives, their next courses, and their work.

And she never saw the steps the students went through before they got to her: at home, in elementary and high schools, and in the other courses in the college and her department. She didn't see what contributed to each student's different levels of understanding and strengths.

Then one day, a new dean came. He said, "What if all students were successful?" Melany laughed. An insult to education to think that some of these students would be rated "successful." They didn't comprehend the material or complete the assignments. They certainly didn't understand rural sociology.

"No," he explained. "We won't change the expectations. We'll change the process so that all students achieve the expectations." Melany couldn't do anything about that. There was too much that happened earlier over which she had no control. There was too much that happened later about which she had no knowledge.

But, suppose, just suppose, that we could get together and develop a process that would result in all students achieving high expectations? Even honors? Imagine university spokespersons bragging about the achievements of *seniors* and the quality of the graduating class, instead of the SAT scores of the recruited freshmen. And suppose that, every year, students would learn and do more than the class that preceeded them.

A new aim. A look at education as a process. Identifying what contributes to the overall success of each student. Aiming at "success" for each person. No one "fails." No student is "scrapped."

A new aim. A new education system. If we can do it for widgets, why not for students?

- *What is the value of labeling on a curve? What is the harm?*
- *What happens to our expectations of those labeled "below average"?*
- *Will raising expectations increase the number of students that are above average?*
- *What kind of changes are needed to realize a goal of all students succeeding in your class? Your program? Your institution?*

Source: Adapted from Maury Cotter and Daniel Seymour, *Kidgets: And Other Insightful Stories about Quality in Education* (Milwaukee, WI: American Society for Quality Control), 1993.

ideas to identify new products or to customize services.

Where Does TQM Lead?

New behavior in an organization only begins to manifest itself once project successes have multiplied and reinforced the usefulness of committing to TQM. Slowly the virtues of teamwork begin to overshadow independent, isolated, individualized work; gradually employees learn more about the organization, its customers, and how their jobs fit into the larger enterprise. Middle managers, if they were included in the TQM effort from the outset, have been trained to lead, share information, coach, and facilitate; senior management grows more confident in allowing decision making to occur at the lower levels of the organization, closer to the product, service, and customer. Throughout the organization, a heightened consciousness about quality, and what prevents quality, pervades; it becomes easier to recognize the enormous, hidden costs of producing substandard products and services, the "costs of non-conformance." More attuned to customer needs, companies dismantle the old structures and build in flexibility and responsiveness. Executives still steer and navigate the organization but receive continuous input and feedback from all parts of the organization.

Companies that have practiced total quality well for a long time, according to the GAO survey, exhibit common features, including "widespread information sharing, fewer formal and informal barriers between departments and among workers, a spirit of innovation, and a high level of employee satisfaction." It cannot be overemphasized, though, that these new behaviors are *not* something to mandate and implement; they are a natural, albeit difficult, result of a patient, appropriate practice of TQM over time.

Is There a Model Relevant to Higher Education?

The problem for many industries once they grasp the "quality imperative" is how to translate the theory into reality. Translation takes time; it must be done industry by industry, organization by organization. The service industries, let it be noted, generally have met with less success than manufacturing thus far—Federal Express and the Ritz Carlton notwithstanding. Higher education has good reason to be wary.

UNIVERSITY TQM ADVOCATES MAY NEED TO RETHINK THE PLACE OF QUALITY MANAGEMENT ON CAMPUS, LEST TQM WIND UP BEING ABOUT PARKING STICKERS.

Our most salient industry model could be health care. Two reports by the Health Care Advisory Board, *TQM: The Second Generation* and *TQM: 14 Tactics for Improving the Quality Process*, draw conclusions strikingly similar to those from studies done in other industries. The HCAB reports offer special insight into the role of doctors in TQM organizations (medical centers), a role that is analogous to that of professors in universities.

Hospitals that have been most successful implementing TQM have involved doctors early and extensively. Hospitals that ignored MDs in implementation efforts found themselves incapable of dealing with their critical processes—clinical quality and doctor retention, for example. Without MD participation, TQM gravitated to changes like reducing patient waiting times and billing complaints. No hospital can address its core processes without doctors' involvement, the board concluded. One hospital trained its doctors *before* its managers; another handpicked a quality council composed *solely* of doctors. Doctors were then encouraged not only to conduct some of the training but to lead quality improvement teams, both clinical and non-clinical. Skepticism was overcome and high MD involvement was achieved only after the early projects and teams had been proven successful.

Many universities have begun implementing TQM under administrative leadership, and have shied away from classroom and curriculum issues, which is to say from their core processes. Most often this aversion is attributed to faculty, who are said (like MDs in hospitals) to be suspicious of any new management philosophy. Further, they (like MDs) know their jobs and they are *already* providing quality. University TQM advocates may need to rethink the place of quality management on campus, lest TQM wind up being about parking stickers and billing complaints.

Conclusion

Given TQM's decade-long run, it is surprising how scant the documented evidence for its best practice remains. In some ways we've just begun to move beyond anecdotes and platitudes to the pleasant (and unpleasant) truths about doing TQM. Higher education, though a late arrival on the quality scene, still must pioneer into very new territory.

This is not to say industry has nothing to teach us. On the contrary, it is helpful to see across the sectors the importance of building quality principles into strategic and business plans; of finding champions at every level of the organization, particularly at the top; of focusing on results *and* processes; of bringing new teams on line, only as needed; of incorporating customers early on and forever. These general recommendations can serve us well.

While other sectors like health care are just beginning to systematize what works, we in higher education have years to go before we can do the same. Nevertheless, we cannot afford to go slowly; the demands for quality escalate by the month. For our long-term, collective success, and even as we continue to draw lessons from industry, we'll draw most of our wisdom from one another. ☐

LEARNING

Lessons From The Workplace In the Classroom

'Total quality management,' first applied in business, is being adapted for education

By Mark Trumbull

Staff writer of The Christian Science Monitor

BOSTON

AT the Boston University school of management, a transformation is under way. Students will increasingly be graded not only as individuals but also as members of teams.

"For you to succeed, the team must succeed," Dean Louis Lataif tells students. Students must still pass individual proficiency tests, but by next fall, 90 percent of the course work for a master's degree in business administration (MBA) will involve some kind of teaming, Mr. Lataif says.

For Lataif, a former vice president of the Ford Motor Company, the growing emphasis on teamwork is part of a broad move to implement the principles of "total quality management."

TQM, long a buzzword among companies struggling to regain their competitive edge, can also work significant changes in America's educational system, Lataif and other educators say.

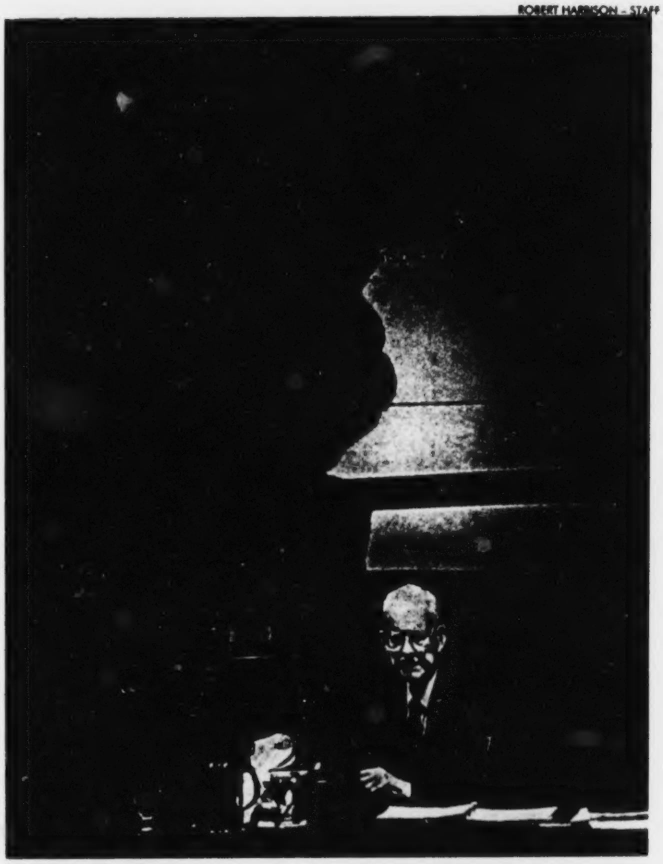
"I think it's our greatest hope," says Seldon Whitaker, a high school superintendent who for several years has been incorporating TQM concepts into programs in the State College, Pa., school district.

Although the application of these management ideas in the education world is still in its infancy, interest is "growing exponentially; it is just booming," says Jonathan Fife, director of the ERIC Clearinghouse on Higher Education, an information resource center at George Washington University in Washington.

If this movement is to transform education, however, several hurdles must be jumped. These include teachers' resistance to change and the time and effort it takes to implement TQM.

The basic elements of the system espoused by W. Edwards Deming and other management experts include a focus on "customer" needs, measuring performance and trying continuously to improve it, and creating a management environment (including pay and promotion policies) in which everyone works toward common goals. **(See story, left.)** Proponents emphasize teamwork as part of this effort.

ROBERT HARRISON - STAFF



DEMING: *The father of 'total quality management' (although he eschews the term) speaks to management-school students at Boston University in March.*

To date, efforts to apply these management concepts in education have been aimed mostly at administrative performance, rather than at curriculum, says Lawrence Sherr, professor of business at the University of Kansas and co-author of a recent book, "Quality: Transforming Postsecondary Education" (George Washington University).

Many colleges, however, are trying to apply the ideas more broadly, Professor Sherr says. These range from community colleges to elite schools such as Cornell University in Ithaca, N.Y., and the Massachusetts Institute of Technology in Cambridge, Mass. A few institutions are trying to implement the quality regime university-wide. These include the University of Michigan, the North Dakota university system, and Pennsylvania State University.

"Nobody has been at it very long," Sherr says, noting that businesses typically pursue TQM for more than three years before results begin to show up. Schools have "just started to scratch the surface," he adds.

Among the visible results in educational institutions:

- Many business schools and engineering schools teach the principles of TQM.
- Teachers are being encouraged to view students as "customers." This may lead, for example, to more surveys asking them whether lectures are easy to understand.
- Universities are also viewing students as "inputs" arriving from other systems. "We need to work closely" with the grade schools and high schools, Sherr says. Penn State's engineering program, for example, is working with Pennsylvania high schools to improve student preparation.
- Schools increasingly cooperate with employers. Much of the impetus for TQM in schools has come from business. Sherr's book quotes one executive who warns: "We'll stop recruiting at places that aren't teaching total quality."

The Penn State center was established with business funding, and 10 state high school districts – also aided by local businesses – are eight months into a program to learn quality management. Each district sends its superintendent, the president of the teachers' union, one principal, and one teacher to Penn State for a two-day seminar every month. These small teams will then lead the implementation of TQM in their school districts.

BEFORE this program, Mr. Whitaker's district had already responded to local employers who, when surveyed, said vocational education was not teaching enough teamwork skills.

The involvement of the teachers-union president has "cut through a lot of resistance" to TQM in his school district, Whitaker says.

The same resistance exists at the university level, where professors "are some of the most conservative, nonchanging individuals you'll ever find on the face of this earth," Mr. Fife says.

At Boston University, Lataif is asking professors to work more closely together in their teaching and research. They, as well as the students, will "learn the power of collective minds," the dean says.

Linda Goldstein, a student in the MBA program, says working in teams has revealed how different perspectives – from a foreign student or a "numbers person" – can help solve problems.

Whitaker says that in his high school district, administrators developed a "more collaborative atmosphere" when they did away with a ranking system to determine pay raises. "We still assess [individual] performance, but not on a point system," he says.

WHAT IS TOTAL QUALITY MANAGEMENT?

BOSTON

W. Edwards Deming is considered the father of total quality management (TQM), yet he reacts almost angrily to the term. "Don't ask me about it. I don't use it. It's not in my vocabulary," he said in a recent interview.

The statistician, who earned a doctorate at Yale University in 1928, is credited with helping Japanese industry make dramatic gains after World War II ("*at their request*," he stresses). Dr. Deming talks mostly about good management, rarely using the word quality.

"TQM is simply excellence," says Louis Lataif, dean of Boston University's school of management and a Deming disciple. "Excellence is not going to go out of fashion."

Dr. Lataif describes five facets of the system, all of which could apply to a school as easily as to a business:

Customer focus. Customers didn't know to ask for a microwave oven before it was invented, he notes. Successful companies direct their efforts to meet consumers' needs.

Management by facts. Deming and other statisticians developed methods to regularly test the output of a system, whether it is an factory assembly line or a sales force, to see how well it is functioning.

About 96 percent of problems are due to poor system design, not poor performance by the people in it, Deming contends.

Continuous improvement. Alternatives to the existing system are planned, tested, and then – if they are better – implemented.

Total involvement. Everyone in the system works toward the overall goal of the organization, not toward individual or narrow departmental goals.

Systemic support. The system is designed to be supportive of the preceding principles. Too often people are still promoted on the basis of how well they do for their department, not how well they serve the organization, Lataif says.

Deming tells of one company's travel department that saw its goal as keeping travel costs down. The result: An employee had to get up at 1 a.m. to catch a cheap flight to New York for an important afternoon meeting; the travel department saved $138.

Lataif acknowledges that, while these concepts are vital to the "how" of running an organization, they do not provide the "what" – the sense of mission or direction. "That's leadership," he says.

– M. T.

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Deming: We've Been 'Sold Down the River on Competition'

BOSTON

SELDON WHITAKER, superintendent of high schools in State College, Pa., remembers meeting W. Edwards Deming at the close of one of his famous four-day seminars. On learning Mr. Whitaker's profession, the quality-management sage asked, "Did you get rid of grades yet?"

"No."

"Do it Monday."

"It's not that simple...."

"Do it Monday."

The exchange reveals Dr. Deming as a man utterly convinced of certain ideas to which many Americans are opposed.

Asked if any United States companies have put his ideas into practice, he responds: "Not that I know of. Maybe Ford," a company that hired him as a consultant.

Deming's air of disappointment can be taken with a grain of salt: Thousands of people have been reading his books or books indebted to his ideas. Boston University recently gave him an honorary degree, after which he spoke with the Monitor.

He opposes giving out grades in schools for the same reason he objects to the currently popular idea of "pay for performance" at companies: These approaches encourage individuals to "try hard," downplaying management's responsibility to keep improving the overall system.

America has "been sold down the river on competition" as a way of improving performance, Deming says. What's needed instead, he says, is "profound knowledge." This means ideas from outside that can improve a system.

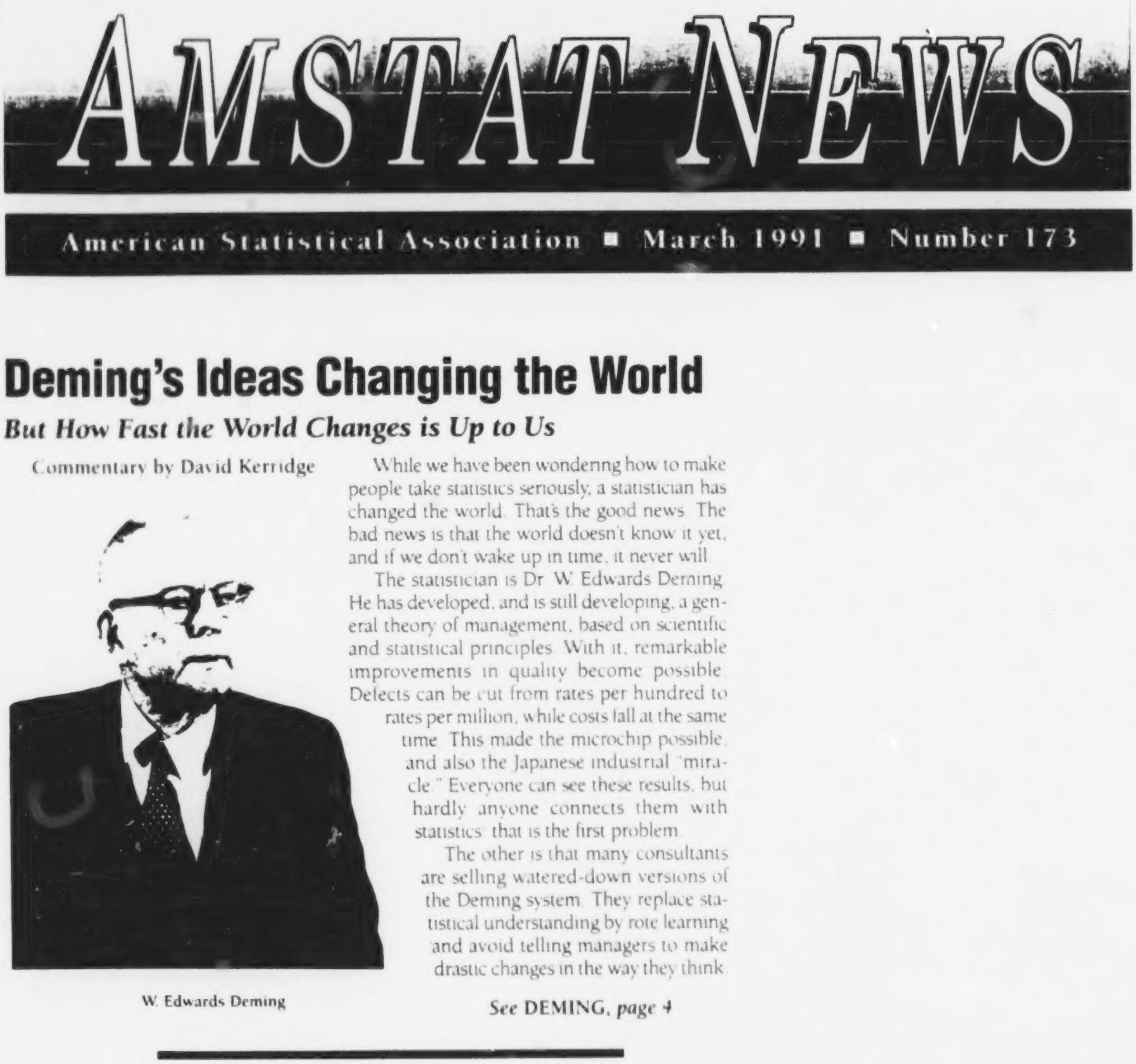
Deming argues that numeric goals or quotas often encourage participants in the system to fudge numbers or cheat customers to meet the goals. He cites Sears Roebuck's automotive-service centers, which were found last year to be selling unneeded services to customers. In "The New Economics for Industry, Government, Education," recently published by the Massachusetts Institute of Technology's Center for Advanced Engineering Study, Deming attributes the problem to targets set by Sears.

But American goal-setting seems to be growing. Last month the Clinton administration announced Goals 2000, which would expand a Bush-administration initiative to set national objectives for students, teachers, and schools. Still, Whitaker says Deming's approach can mesh with a "results" focus, since he outlines "processes to achieve those results."

Grades are unlikely to go out of style, educators say, but some foresee changes in the grading process. Many share Deming's distaste for grading on a curve. And some advocate more-frequent testing so deficiencies can be corrected along the way.

"Don't wait till the end of the year to give a test and then fail some people," says William Hartman, director of the Center for Total Quality Schools at Pennsylvania State University in University Park, Pa.

– M. T.



AMSTAT NEWS

American Statistical Association ■ March 1991 ■ Number 173

Deming's Ideas Changing the World

But How Fast the World Changes is Up to Us

Commentary by David Kerridge

While we have been wondering how to make people take statistics seriously, a statistician has changed the world. That's the good news. The bad news is that the world doesn't know it yet, and if we don't wake up in time, it never will.

The statistician is Dr. W. Edwards Deming. He has developed, and is still developing, a general theory of management, based on scientific and statistical principles. With it, remarkable improvements in quality become possible. Defects can be cut from rates per hundred to rates per million, while costs fall at the same time. This made the microchip possible, and also the Japanese industrial "miracle." Everyone can see these results, but hardly anyone connects them with statistics: that is the first problem.

The other is that many consultants are selling watered-down versions of the Deming system. They replace statistical understanding by rote learning and avoid telling managers to make drastic changes in the way they think.

W. Edwards Deming

See DEMING, page 4

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DEMING—

continued from page 1

Probably these popularizers mean well. Statistical thinking is so hard for managers to accept, that there is a temptation to treat it as a barrier to quality, rather than the essential foundation. Anyway, rules are easier to sell than principles: who wants to think?

Statistics in quality is nothing new. The t-test was developed to help make better Guinness [ale]; clinical trials are a standard way to improve medical treatment. These deal with improvement at the obvious level— of tactics, not strategy. Statistics even at this level, used throughout industry and commerce, would lead to very useful gains.

These gains are nothing to those which come when statistical and scientific thinking are used to study complete systems, and management itself. Take health: drains and good housekeeping save more lives than penicillin. The changes that brought these about were based on statistics, which is why Florence Nightingale was one of our founders. In the same way, many Japanese managers do not know why job security leads to quality, or merit ratings destroy it: they just accept the fact.

Quality management has more to do with people than with machines. People are the most variable, least predictable, and most important part of any system. Managers struggling with complex problems usually feel that science and statistics can not help them. It is easy to see why. Few have ever known statistics as anything but the routine collection of figures, or the application of text-book formulae. These are useful, but very limited in what they can do.

The most important things in management, as Deming himself says, are "unknown and unknowable." A blinkered approach, seizing on the few things that can be measured precisely, and ignoring the rest, does far more harm than good. Many common management practices fall into this trap. What is worse, the random processes most often met in management are not in a state of statistical control, so ordinary distribution theory does not apply.

These difficulties make the statistician more useful, not less. Someone must judge whether standard statistical methods will work in each problem as it arises. When they fail, as they often do, we have to rely on the basic principles of variation. Deming has made us realize how powerful these are. Take away measurement from geometry, and you still have topology. In the same way, when probability calculation is impossible, many principles remain. We have here, not just a new range of applications, but a whole new field of theoretical research.

The British Deming Association and the Royal Statistical Society have a great deal in common. Both are open educational and research organizations, not concerned with profit, except to the community at large. Both must be concerned with these new developments in quality and statistics. There have already been successful joint meetings: we look forward to fruitful cooperation in the future.

David Kerridge was for many years professor of statistics at the University of Aberdeen in Scotland. He recently retired and now works as an independent consultant.

* * *

Reprinted from the January 1991 Royal Statistical Society *News and Notes*.

New Deming Center Created at Columbia University

Columbia Business School has established the W. Edwards Deming Center for Quality Management, Dean Meyer Feldberg has announced.

Initial funding for the Center is a $185,000 gift to the School from the personal charitable trust of David Sainsbury, Feldberg said. A 1971 graduate of Columbia Business School, Sainsbury is deputy chairman of J. Sainsbury plc, a leading British supermarket chain.

"The goal of this ambitious new program is to perpetuate Dr. Deming's philosophy of effective management of quality, virtually transforming the style of management prevalent today," Feldberg said in the Columbia University *Record* (Nov. 16, 1990).

"Through the Deming Center we intend to incorporate a quality perspective into our curriculum in a comprehensive way," he said. "We want all Columbia Business School graduates to enter the business world with a fundamental understanding of the role of quality management in today's environment of global competition." He noted that the work produced under the auspices of the Deming Center will be made available to other business schools as well as to business and industry.

The internationally recognized champion of quality management for the past four decades, the 90-year-old Deming has been teaching a two-hour class in quality management at Columbia Business School this semester. He said that Feldberg "obviously believes that a school of business has an obligation to prepare students to lead the transformation of management in industry, education and government."

The Deming Center will be directed by Professor John Whitney, a former president of Pathmark Supermarkets and a specialist in business turnarounds. Research director will be Professor Peter Kolesar, whose field is quality management and statistical quality control. Faculty members from the Columbia business and engineering schools with extensive experience in quality consultation with business and industry will be associated with the new Center.

Five other Columbia Business School research centers will be affiliated with the Deming Center, the Center for Studies in innovation and Entrepreneurship, directed by Professor Martin Starr, the Center on Japanese Economy and Business, directed by Professor Hugh Patrick; the Center for Human Resource Management, directed Professor Ann Bartel; the Executive Leadership Research Center, directed by Professor Donald Hambrick, and the Strategy Research Center, directed by Professor Kathryn Harrigan.

When fully funded, the Deming Center will encompass a chair in quality management, a visiting professorship by an internationally respected scholar, doctoral and MBA fellowships and faculty field studies.

"Companies should manage so as to optimize the system, whereby everyone would gain—employees, stockholders, customers, suppliers."

W. *Edwards Deming*

(quoted in *Best of Business Quarterly*, Winter 1990-91)

II.

Planning Period: Thinking through Theory and Concepts

Quality Goes to School

COMMENTARY

RICHARD A. ROSSMILLER

Total Quality Management, or TQM, has rapidly become one of the current buzzwords in educational circles. Unfortunately, it appears that very few educators have more than a superficial understanding of the philosophy, concepts or processes that are embodied in TQM. Some view TQM as the yellow brick road to Utopia and others view it as the road to Hades. Here in Madison, for example, a recommendation by a broadly based planning committee that the local public school system adopt TQM was immediately attacked by teacher union representatives as a nefarious plot to undermine the collective bargaining process.

During the last half of this century the confluence of several trends has fundamentally altered the organization and operation of public schools in America. Reorganization and consolidation of school districts led to more centralization and larger central office bureaucracies; the need to achieve greater racial balance and to provide for students with special needs involved the courts in the day-to-day aspects of school operation more heavily than ever before; the increasing reliance on state funding to both reduce reliance on property taxes and reduce disparities in funding led directly to more rules, regulations and mandates; and the emergence of collective bargaining and strong teacher unions changed the working relationships of teachers and administrators. All of these forces tended to divert attention away from the fundamental building blocks of any educational system: its classrooms and schools. Today we are beginning to realize once again that educational reform cannot be accomplished by mandates alone—that if lasting change is to occur, it must involve fundamental changes in the culture of schools. We see a curious mix of policy initiatives that would, on the one hand, decentralize education by assigning much more authority and responsibility to individual schools and, on the other hand, centralize education by imposing a national curriculum and mandatory testing.

Total Quality Management very clearly favors decentralizing because it explicitly rejects standardized tests and performance evaluations of individual students and emphasizes a team approach in which *all* school personnel—teachers, administrators, counselors, secretaries, cooks, custodians and even bus drivers—focus on creating a school environment in which students enjoy learning and become autonomous learners. To understand and appreciate TQM, it may best be viewed as a philosophy of management that rejects a hierarchical or "top-down" approach in favor of an approach in which all participants can and do contribute to enhancing the quality of the learning community. As David Langford observes, TQM recognizes that students are the workers and that teachers are really managers because they must decide how to use the resources available—time, instructional materials and their own knowledge, know-how, wisdom and character to help a group of students with diverse talents, interests and skills become active, engaged autonomous learners.

Another important contribution of TQM is the recognition that, in many cases, it is the system itself that is at fault, not the teacher, the principal or the students. Langford's comments about accountability are appropriate, i.e., that accountability "is just a fancy word for blame," and that often there is no one to blame because the system as it is currently configured is only capable of producing a certain level of performance.

Our experience with TQM here at the National Center for Effective Schools leads us to be enthusiastic about its potential to help schools become more effective. The five school districts that comprise the Wisconsin Consortium have used the Effective Schools process together with Outcome-Based Education and Total Quality Management to guide their school improvement efforts for more than three years and are beginning to show some impressive results. The Center's Effective Schools process provided a template which guided these districts as they worked with their staffs to develop the conflict resolution, communication, decision-making and leadership skills that are so essential to successful site-based management. Total Quality Management provided both a philosophy of management that complements the Effective Schools process and a set of tools and procedures that are helpful in identifying problem areas and testing solutions—the Plan, Do, Check, Act cycle. We have incorporated several aspects of TQM into our School-Based Instructional Leadership program and have prepared a paper that is available upon request, "The Effective Schools Process for Continuous School Improvement," which shows the interrelationships between and among the Effective Schools process, Outcome-Based Education and Total Quality Management.

The potential TQM holds for transforming our schools into institutions where continuous improvement is the norm is nicely captured by Myron Tribus in his recounting of the statement made to him in Japan: "You promote and reward people for individual performance; we promote and reward people for getting other people to perform well." That is, after all, the acid test of leadership!

WHAT DO WE DO TO IMPROVE?

ANNE TURNBAUGH LOCKWOOD

Myron Tribus, a colleague of W. Edwards Deming, divides his time between Exergy Corporation, a company which is introducing a new approach to electric power generation, and his work as a consultant in quality management. Deeply interested in the application of quality management principles to schooling, Tribus has held positions in both the private and public sectors, including Dean of the School of Engineering at Dartmouth College, Director of the Center for Advanced Engineering Study at MIT, and senior vice president in the Xerox Corporation. He also served as Assistant Secretary for Science and Technology in the US Department of Commerce.

The most compelling way for Myron Tribus to communicate what he means by an education of quality is to tell a story from his personal experience. "When I was Dean of Engineering at Dartmouth," he begins, "we truly revolutionized what we were doing by making student projects central to every class. Here is one thing we did—although we had many different ideas.

"I took a group of sixty sophomore men to a camp in New Hampshire where they had disabled children, thalidomide victims, in those days polio victims, blind children—if there's an affliction, there's a kid there with it.

"I took these sophomores to visit the kids, brought them back and said, 'In ten weeks you've got to come up with some technique or device or gadget that makes it easier for the doctors and nurses to do therapy with the youngsters. We'll solve a problem for these people.'"

The results of the assignment, Tribus claims, were staggering. "These kids worked all night. I had professors of religion visit me to ask what it was that made our students so eager to help somebody else."

The key, to him, is simple. "If you take young people and present them with children such as the ones at the camp and tell them their job is to help, they are motivated."

The results were impressive. "They came up with all kinds of wonderful gadgets. One boy could not use his limbs, and they fixed up an electric typewriter, where the letters flashed on the screen in front of him and by blinking an eyelid he could choose a letter."

Tribus notes that the educational philosophy that permeated the program—similar to the philosophy espoused by the movement known as Total Quality Management—was that teachers must create an environment in which students want to learn, one where they will play an active rather than passive role.

"As the teacher, you have to help students to learn, and you have to teach them how to improve their learning process," Tribus says. "That makes the student co-manager of his or her education."

Tribus's conviction that the principles of Total Quality Management can—and should—be applied to schools is compelling, even to a skeptic. As he explains the philosophy that underpins what he prefers to call "the quality movement," he draws distinctions between industrial and educational applications of TQM's key concepts, and laces his translation of the TQM philosophy with forthright comments that reveal his humanistic, yet hands-on approach to schooling.

How does he define quality? "Quality in the business setting," Tribus replies, "is what makes it possible for your customer to have a love affair with your product or service.

"It is possible," he adds, "to produce a temporary infatuation by telling little lies about the product or service, by lowering the price or by adding clever little features, but these will not last, because it takes quality experiences to sustain devotion."

But how do words like "product," "service," and "customer" translate into an educational setting? Tribus places his definition of quality squarely on the shoulders of the learning process.

"Quality in education is what makes learning a pleasure and a joy," he responds. "Some measures of student performance may be increased by threats, by competitions for grades or prizes, but the attachment to learning will be unhealthy."

He adds, "It takes a quality experience to create an independent learner."

He emphasizes that the purpose that drives the quest for quality is crucial. "We're trying to create autonomous learners, people who are learning because they want to, because they are motivated to learn. That motivation comes from the satisfaction they get from a job well done."

This means that autonomous learners will be motivated to seek quality for themselves, and seek it relentlessly, Tribus says, and he believes that a high degree of self-esteem and confidence will also result. "When students finally decide that they're satisfied themselves, then they can face the world."

Components of a Quality Education

What does a quality education comprise? Tribus believes it must encompass four dimensions, which he lists as "knowledge, know-how, wisdom, and character."

He explains each in turn. "Knowledge enables us to understand what we learn and how to connect it to other things we learn. It provides us with the ability to generalize from our experiences. With knowledge, we can accumulate thirty years of experience instead of one year repeated thirty times."

Know-how, he observes, is hands-on and applied. "It enables us to put knowledge to work and requires the integration of knowledge from many sources. While knowledge may be gained from reading, listening, and discussing, know-how can be acquired only by doing."

He defines wisdom as "the ability to decide what is important and what is not. Wisdom allows us to set priorities for ourselves and helps us to decide what is worth worrying about."

He continues, "Character is a combination of knowledge, know-how, and wisdom, coupled with motivation."

It is crucial to remember that the education that students receive, not students themselves, is the product. Tribus explains, "In a classroom, the students are the customers of the teacher. Together they define what makes a quality experience. Teachers are the customers of the administrators, and administrators are the customers of the school board.

"Customers for the education that students will receive are the students themselves, their parents, their future employers, and society at large." He adds, "The employer wants to use the student's education, abilities, knowledge, know-how, wisdom, and competence. The student wants to rent out his education to somebody. Parents want a good education because they paid for it. And finally, the country at large would like to have kids well-educated so the country can better function. Every one of us lives surrounded by other people, so we want everyone to be educated, responsible, and of good character so that we can survive. We, society at large, are customers of that education.

"If we are the *supplier* of the education, we have to make sure that we find out what all those people are looking for, and then decide what to do about it. Fortunately, they're not that much at variance."

How TQM Stands Apart

Tribus believes that TQM differs from other approaches currently used in schools because of three distinguishing characteristics. "TQM is holistic," he points out. "It deals not only with the classroom but the management of the school and the roles of all the players. Another unique feature is the insistence on quality, that is, defining excellence in everything you do. And the third element is understanding the role of statistical variation.

"We're saying that we have to teach people the tools and techniques of quality management, but we can't talk about the techniques without talking about the social system in which they are embedded. And we can't talk about the social system without discussing the managerial system within which the social system is embedded. And that whole thing is boxed in by the educational system. When we talk about quality management, we talk about treating them all at once. You can't talk about any one piece without the rest.

"That," he says, "is unique."

But he is not content to explain only how TQM differs from more prevalent approaches to schooling. As he points out its distinguishing characteristics, he indicts other approaches. "The current approach to schooling," he says, "is based heavily on ideas associated with competition and ranking. People want to know how good something is relative to something else. Under TQM, the only question is: What do we do to improve?"

And this question, according to Tribus, is just as appropriately raised by a student as by a teacher or school administrator. In fact, students working in tandem with teachers who, in turn, are working with administrators and parents, will produce the best—or highest quality—education.

Prizes, rankings, standardized tests, grades, and performance evaluations are all equally abhorrent to Tribus, who advocates Deming's belief that they create competition, which is destructive. "You want a bunch of simpletons, you give simple tests," he says tartly.

But what does he suggest to replace them, beyond the TQM statistical techniques used regularly by students and school staff?

In his answer, Tribus says that measurement of quality is delimited by the type of education desired as an outcome. "The education you are trying to produce must include the four components of knowledge, know-how, wisdom, and character. If you say, we're only going to test knowledge, we're only going to benchmark against knowledge. I was a teacher for forty years, and I know now how shallow that is. If that's all you test, that's all you'll get, and the other things won't be taught. If you say, we're going to test know-how, we know how to do that. Good technical schools do that. You can give a person a task to do and see if they can do it. But then what about wisdom and what about character? Are you going to leave them out?"

Instead, he suggests that schools certify that they have taught students the four components necessary to a quality education. "If you wanted to know if the school was doing the job right, you'd invite a random sample of students from that school to take examinations anonymously, so the students aren't being judged. Those would be reviewed to see if the sample matches what the school is saying about its students.

"We don't need an independent testing agency," he notes, "but we do need an independent testing, a process, which we will compare from time to time."

How do school staff —and students— realize when quality has been attained? Tribus warns that there are no simple measures for quality. "There are, however, several measures of the *processes* of learning that indicate whether quality can be attained."

He illustrates with an example. "An exercise I urge teachers to undertake is to make a list of the things that destroy quality. Such a list is best prepared in cooperation with the learners. These items will define the things that should not be done! Then, if an effort is made to do the opposite, you will be on the road to quality."

He predicts that a typical list prepared by teachers and students together would include items such as students not doing the reading, the reading not being interesting, the teacher doing all the talking, a competitive atmosphere that makes most of the students feel inadequate, the use of external motivators such as grades, and actions that reduce self-esteem.

Tribus declares, "Staff will know they are achieving quality by observing that the students are doing their work with joy and are operating mostly on their own initiative. The teacher becomes an enabler, rather than a person who does something to someone else."

How To Begin

How should an administrator begin to implement the concepts of TQM into a school or district? Tribus says the starting point is similar for business executives anxious to change their company's method of conducting business.

"There are several things you have to do," he states. "You have to gain knowledge and you have to gain know-how.

"One of the things you could do would be to talk with some of your teachers to see if there are some who already know about it, or who are interested. Form a small group with them. I use Pareto's law, which says that the number of people who count is the square root of the number of people in the enterprise.

"If you have a school with a hundred teachers in it, find ten and meet with them informally to read and talk about this. Take turns reading and reporting on what you read, go to different seminars, and hear the different gurus."

At the end of an approximate six-month time period, Tribus says it is time to "gain know-how," which can be done by applying some of the key concepts at the classroom level. "You, the teachers, perhaps the senior students, and a consultant should do some experimenting for about a year. At the end of a year, you will have some evidence of what it means to try to run with quality. Take the results of that and discuss it with your faculty. After that discussion, it's time to go to the school board."

Tribus asserts that a presentation to the school board should not be made to gain approval for what is being done. "Assume you have approval," he says. "Tell them what you want them to do to help you improve these things you have been working on. You should have been able to do this all on your existing budget. This is how you get started, and from there it will take off."

The rationale behind the formation of the initial team is that learning is a social activity, Tribus maintains. "Learning all by yourself is very difficult," he comments. "You need to create a little social environment in which to learn. And if what you're learning involves a paradigm shift, you must try it out as quickly as possible. Good judgment comes from bad experience. You develop wisdom from your mistakes.

"By inviting the students, who are the customers of this education, to participate with you, you begin to achieve a paradigm shift. In industry, the paradigm shift can be explained by the fact that the workers at the bottom have brains, but it's hard for the people at the top to accept that. They believe the reason they're at the top is that they're the smartest. People at the bottom are obviously there because they're the dumbest.

"If you organize society and teach people that, they like it and it reinforces itself. You have what we have today—people at the top convinced that they're there because they're superior and the people at the bottom are there because they're inferior. Even the people at the bottom begin to believe it. It's a very bad way to view the world, but there it is.

"So I have a rule. Whenever an improvement is made, the lowest-level person who participated should tell the story of the improvement at the highest possible level in the company, so that the people at the top are hearing things that they find incredible from people they really didn't believe in before. That is part of the strategy for getting people at the top to realize that there is a lot of brainpower at the bottom."

How do team members guard against competitive urges to dominate the group? "Competition will happen," Tribus says, "and your job as administrator is to ameliorate it, not eradicate it, as best you can. That's the point at which I have a consultant come in, because the consultant begins to add the quality discipline that people don't recognize they need. The consultant will have the group decide what they are trying to do, make sure that what they say is operational, and then focus on how they will do it and how they will measure the quality of it. As people start to work on those things, the competitiveness begins to fall away."

But how do schools know a good consultant from one who is mediocre? "First of all, you have to know that this person is competent in quality management principles. You find out if they have any other customers, and you talk to those customers, asking specific things they have done. Then you have to make sure that the chemistry between you and this consultant is good."

What about the role of statistical variation, which is an integral component of TQM? Are there particular difficulties in learning and applying the key statistical concepts? Tribus believes that the basic statistical concepts are not difficult to comprehend. "We're not talking about what happens in Stat 101, or a course that educators all have to take. We're talking about something that is very, very simple. There isn't a single statistical tool that we teach that can't be learned in an hour."

> *"It takes a quality experience to create an independent learner."*

Preferring to call statistical variation "data evaluation," Tribus stresses that children can learn it easily as well. "As soon as kids are big enough to use a calculator and to know what addition, multiplication, and division stand for, they can do all the statistics that they need."

What Will Students Gain?

If TQM is adopted, Tribus says that gains for students will include a recognition that systems must be treated holistically, rather than "as individual pieces. Another concept they will learn is the whole idea of statistical variation, while another is an organized way of understanding cause and effect, always looking for causes and trying to see them in a systematic way.

"We use the word system in two senses," he adds parenthetically. "One sense is that things are systematic, meaning you have an algorithm or a way of doing things. In the other sense of the word, you consider a collection of interacting things we have isolated in our minds for study to see how they act on one another and how the actions and resulting actions all create a dynamic.

"When we say the problem is systemic," he continues, "we mean that the problem arises because of the structure or behaviors of the system in the second sense, not in the first sense. When we say, 'TQM is holistic,' we mean TQM is a system in the first sense, treating systems as a whole."

Students also learn to be analytic about their own education, Tribus maintains. "They learn to analyze what they learn and how they learn it so that the activity of learning itself is something they become good at, and becoming good at the activity of learning is an end in itself because they identify that with quality."

Tribus, who is convinced that TQM is essential to transform the present educational system, sums up its occasionally elusive philosophy in a sentence. "I heard a wonderful explanation in Japan. They said, 'You promote and reward people for individual performance; we promote and reward people for getting other people to perform well. That's the difference."

Focus in Change

DEMING'S ORIGINAL 14 TQM POINTS*

**1 Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to
stay in business, and to provide jobs. 2 Adopt the new philosophy. We are in a new economic age. Western management
must awaken to the challenge, must learn their responsibilities, and take on leadership for change. 3 Cease dependence
on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in
the first place. 4 End the practice of awarding business on the basis of price tag. Instead, minimize total cost. Move
toward a single supplier for any one item, on a long-term relationship of loyalty and trust. 5 Improve constantly and
forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs.
6 Institute training on the job. 7 Institute leadership. The aim of supervision should be to help people and machines
and gadgets to do a better job. Supervision of management is in need of overhaul, as well as supervision of production
workers. 8 Drive out fear, so that everyone may work effectively for the company. 9 Break down barriers between
departments. People in research, design, sales, and production must work as a team, to foresee problems of production and
in use that may be encountered with the product or service. 10 Eliminate slogans, exhortations, and targets for the work
force asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the
bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the work
force. 11 A: Eliminate work standards (quotas) on the factory floor. Substitute leadership. B: Eliminate management
by objective. Eliminate management by numbers, numerical goals. Substitute leadership. 12 A: Remove barriers that
rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer
numbers to quality. B: Remove barriers that rob people in management and in engineering of their right to pride of workmanship.
This means, *inter alia*, abolishment of the annual or merit rating and of management by objective. 13 Institute
a vigorous program of education and self-improvement. 14 Put everybody in the company to work to accomplish the
transformation. The transformation is everybody's job.**

DEMING'S POINTS MODIFIED BY STUDENTS AT MT. EDGECUMBE HIGH SCHOOL, SITKA, ALASKA

1 *Create constancy of purpose toward improvement of students and service. Aim to create the best quality students capable
of improving all forms of processes and entering meaningful positions in society.* 2 *Adopt the new philosophy. Educational
management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.*
3 *Work to abolish grading and the harmful effects of rating people.* 4 *Cease dependence on testing to achieve quality.
Eliminate the need for inspections on a mass basis (standardized achievement tests, minimum graduation exams, etc.) by
providing learning experiences which create quality performance.* 5 *Work with the educational institutions from which
students come. Minimize total cost of education by improving the relationship with student sources and helping to improve
the quality of students coming into your system. A single source of students coming into a system such as junior high students
moving into a high school is an opportunity to build long-term relationships of loyalty and trust for the benefit of students.*
6 *Improve constantly and forever the system of student improvement and service, to improve quality and productivity.*
7 *Institute education and training on the job for students, teachers, classified staff and administrators.* 8 *Institute leadership.
The aim of supervision should be to help people use machines, gadgets and materials to do a better job.* 9 *Drive out fear,
so that everyone may work effectively for the school system. Create an environment which encourages people to speak
freely.* 10 *Break down barriers between departments. People in teaching, special education, accounting, food service,
administration, curriculum development and research must work as a team. Develop strategies for increasing the cooperation
among groups and individual people.* 11 *Eliminate slogans, exhortations, and targets for teachers and students asking
for perfect performance and new levels of productivity. Exhortations create adversarial relationships. The bulk of the causes
of low quality and low productivity belong to the system and thus lie beyond the control of teachers and students.* 12
*Eliminate work standards (quotas) on teachers and students (e.g., raise test scores by 10%, and lower dropouts by 15%).
Substitute leadership.* 13 *Remove barriers that rob the students, teachers and management (principals, superintendents
and central office support staff) of their right to pride and joy of workmanship. This means,* inter alia, *abolition of the
annual or merit rating and of management by objective. The responsibility of all educational managers must be changed
from quantity to quality.* 14 *Institute a vigorous program of education and self-improvement for everyone.*
15 *Put everybody in the school to work to accomplish the transformation. The transformation is everybody's job.*

From Deming, W.E. (1986). *Out of the Crisis* (pp. 23-24). Cambridge, MA: MIT Center for Advanced Engineering Study.

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TQM in Education: The Theory and How to Put It to Work

By Myron Tribus

W. Edwards Deming often says, "Experience alone teaches nothing." If you do not have a theory to provide a framework to understand your experience, you do not accumulate 30 years of experience; you merely repeat one year 30 times.

By "theory," we mean a connected set of concepts residing in our heads. The concepts represent our image of "reality." We use them to make predictions about how our future depends on our actions.

The purpose of this essay is to describe how the theory of management developed by W. Edwards Deming may be applied to the educational process. The theory was originally developed to improve the management of manufacturing enterprises. Over time it has been extended to service industries, government, and even not-for-profit enterprises. It is important to consider how best to apply the theory to education.

By what criteria should we judge a theory of management in education?

We have no shortage of proposals for reform in education, nor a shortage of good ideas and research results. The task is not just to pick one of them, but rather to develop a comprehensive approach within which to implement the many good works known to us. The theory of management developed by Dr. Deming provides an excellent framework within which to examine proposals for improvement.

Any theory of education reflects the philosophy, either explicitly or implicitly, of the philosopher. Education is the means whereby adults pass on to children their beliefs, values, and desires for the future. Whatever is done in education represents a philosophy and a system of values -- our beliefs regarding the good, the true, and the beautiful.

The Deming theory of management is based on a humanistic philosophy. It begins with the belief that all people are educable, that they want to do a good job and they deserve respect. They are not born mean, but can be made so. The philosophy behind the Deming approach values the self-esteem of those who learn and those who teach.

The Deming theory of management goes beyond the historical views of management in specifically recognizing the impact of the system on the behavior of people. Deming often cites a rule he attributes to Juran:

> *When there is a problem, 85 percent of the time it is with the system; 15 percent of the time it will be with the workers.*

Lately Dr. Deming has suggested the numbers should be 95 percent and 5 percent. To deal with a problem, therefore, Deming advises to begin with an examination of the system that an overwhelming amount of the time, he argues, is the source of the problem.

Concern for how people respond to managerial actions is crucial to the success of quality management, which is why Deming emphasizes the need for managers to understand elementary principles of psychology and the scientific basis for these principles.

Deming's view takes into account statistical variation. He calls for management by fact, which implies collecting data and analyzing them statistically before decisions are made.

Because Deming views systems as the means whereby human wealth and happiness may be obtained, he warns against managerial actions that lead to less than optimum *system performance*. He especially argues against managing each component as though it were separate from the others, an approach that occurs, for example, when accountants try to make each activity its own "profit center."

Deming warns against approaches that pit the person against the system or against other persons. Deming believes in personal responsibility, but goes beyond that concept to consider the special responsibilities of those who manage systems. Conventional approaches to management, i.e., as discussed in *Fortune Magazine*, often dwell upon the *rewards* of management, e.g., by publishing annual salary surveys. Deming dwells upon the *obligations* of management.

A satisfactory theory of education should address the teaching/learning processes as central to the mission of the institution, and it should bring to bear on these processes tools for improvement.

The theory should also address the related issues of parental participation, school administration, and teacher training and evaluation. A satisfactory theory, therefore, should be "holistic." The theory should take into account research in the fields of education and social sciences. The theory should have a scientific basis, and a moralistic basis. It should be based on an understanding of what is fair and what is good for society, even if these determinations in specific situations are not always easy to make.

The fruits of education occur in the future. A good system for the management of education demands a long-range perspective. Long-range planning requires consistency of purpose, communicated to all through a vision of what the enterprise ought to be.

A really good system of management will alter the goals and objectives of the educational system, recognizing trends and changes in the environment. In spite of change, the basic philosophies of management and teaching should remain constant.

Moving from the one-room schoolhouse to the computer-based modern school should call for a change in methods, but not for a change in objectives and philosophy.

If presented with a theory of management in education, we should ask:

1. On what philosophy is it based? Is the philosophy explicit?
2. What is the implied set of values behind the theory?
3. What vision of the future motivates the theory?
4. Is the theory holistic, i.e., does it recognize education as a system? Does it deal with the teaching/learning processes? With the responsibilities of leadership and management?
5. Is the theory based upon and does it make explicit use of:
   a) Psychology of people, taken individually and in groups?
   b) Systems theory?
   c) Statistical variation?
   d) A theory of knowledge?
6. Does it identify a particular set of tools and techniques to make it practical to reduce the theory to practice? Do these tools and techniques span the activities from teaching, learning, leading, managing, as well as relations with people outside the system?
7. Is the theory capable of being:
   a) Descriptive, i.e., provide language and concepts that help us understand what we see? Does it increase insight?
   b) Predictive, i.e., enable us to predict, with a reasonable probability, what will happen in the future? Does it help us to decide what to observe? Does it identify leading indicators of improvement?
   c) Normative, i.e., provide a guide to action without being proscriptive?
8. Has the theory ever been reduced to practice with good results?
9. Does the theory call for widespread participation and promote continuous learning on the part of everyone in the system, not just the students?

A holistic approach to management requires concern with seven essential elements: philosophy, vision, strategy, skills, resources, rewards, and organization. The omission of any one link in the chain renders the theory inoperable.

Omit philosophy, and you have no followers. Omit vision, and confusion results. Omitting strategy produces false starts. Without skills, the result is anxiety. Without resources, you have frustration; without rewards, bitterness; without organization, no coordination. With all seven, you have success!

Any approach to education should be examined to see whether it deals with all of these seven elements.

People often demand that we prove, ahead of time, that quality management will work in their enterprise. They say, "Sure, it works in industry. But can you prove it works in education?"

Dr. Deming habitually responds to such questions with the remark, "Survival is not mandatory." He knows there are some things one cannot "prove." To "prove" is to demonstrate, by words and logic, that something is true.

No one can prove a theory, but we can disprove theories in many ways. For example, we can prove logical inconsistency, or supply counter examples. But we cannot prove a theory. Even if we point to years and years of social research supporting our contentions, this does not provide proof.

We can often point to experiments conducted in systems that were only partially organized for quality management, but these are capable of many interpretations and do not serve as proof. They do not persuade those who are doubtful.

In many areas of life, "proof" that a normative theory works can only be experiential. For example, unless you have experienced cooperative learning, or independent study, in competitive-free environments, there is no way anyone can "prove" to you that cooperative education really works. The best we can say is: "Try it. Give it a chance. You'll like it."

In adapting quality management, originally developed for business enterprises, we must keep in mind certain differences between education and business:

- The school is not a factory.
- The student is not a "product." The education of the student is the product.
- Successful completion of the product requires the student to participate as a worker, co-managing the learning process.
- Teaching and learning are two different processes. Teaching is more akin to management than to detailed supervision of activities. Learning is more akin to research and development (R&D) than it is to an assembly process. Attempts to organize R&D as though it were merely an assembly of ideas to be managed in the style of an assembly line have been disastrous. The same is true in education.
- In industry, quality management requires every manager of every process to identify a customer. If a process has no output for which there is a customer, why do it? Educators are not habituated to the concept of "customer." They are apt to believe that a process should continue because "we've always done it that way."

There are many "customers" for the product, i.e., for the student's education. In order of importance, they are:

1. The students themselves, for they must live with the product for the rest of their lives.
2. Their parents, for they, too, must live with the product and they are the ones who, in general, pay for it.
3. Future employers, who will have to pay to obtain the benefits of the student's education.
4. Society in general, as represented by governmental agencies, which pay a large fraction of the cost of the education and thus desire that the student, as an adult, becomes a contributing member of society.

The objective of every school or university should be to provide for each student opportunities to develop in four categories:

- Knowledge, which enables us to understand.
- Know-how, which enables us to do.
- Wisdom, which enables us to set priorities.
- Character, which enables us to cooperate, to persevere, and to become respected and trusted members of society.

We refer to these four components as the contents of the education. A theory of management for education should consider not only the contents, but also the system, environment, style, and processes required to deliver the contents. Because the contents will vary from school to school and community to community, the theory addresses how the contents are determined.

Existing approaches to management in education do pay attention to both the contents, which too often considers topics, (such as mathematics, science, art, English, and history) as independent topics, not part of a system.

Likewise, existing approaches treat the method of delivery too often merely in terms of the physical environment, the schedule, and the methods of testing. What distinguishes quality management from conventional management are these concerns:

1. Concern to define achievement by reference to the purpose of education, not standardized tests.
2. Concern for processes instead of organizations, to make form follow function.
3. Concern for improvement of processes instead of working only on outputs.
4. Concern to involve all players in the improvement process, not just the faculty.
5. Concern that every person in the system understands how the system works, what the system is supposed to do, and how well it is doing it.
6. Concern to optimize the performance of the system as contrasted to optimizing components of the system, i.e., beyond raising scores in specially identified subjects.
7. Concern that every person is educated to participate in the improvement process, i.e., that everyone becomes response-able. Too often conventional approaches to management are concerned only to identify people who are responsible. Quality management is more concerned about fixing the system than fixing the blame.

In industry we have learned to pay close attention to the processes that produce the goods and services. The important principle derived from industrial experience is:

> *If you want to improve a product or service, pay close attention to the processes that produce the product or service. Measurements on the product or service provide, at best, lagging indicators. They are too late to provide more than regrets. Measuring the characteristics of the process provides leading indicators upon which actions may be taken to insure a good result.*

A keystone in the Deming philosophy is the continuous improvement of all processes. It is not important to identify, at any one moment, the best process someone else has developed.

Rather, the enterprise and its managers should learn to develop the habit of continuous improvement. Any theory of management that seeks the best process for delivering a service and then organizes itself to keep that process constant with time is suspect.

Although today much attention is paid to "benchmarking," that obsession should be understood as a crutch for managers who do not know how to make their organizations obsessive about improvement. The justification given by most managers for their focus on benchmarking is that it supplies a motivation for the workforce.

"See how well they are doing it? We ought to be able to do at least as well!" An obsession with benchmarking relieves the managers from having to lead the way in improvement and of having to inspire creativity in the workforce.

If boards of directors understood their jobs, they would appoint as CEOs only those who have demonstrated their ability to lead people in the processes of improvement.

School boards who understand quality would look first at candidates for superintendent by asking for strong evidence of leadership coupled with good managerial skills.

Two Official Visions of the Future

By Myron Tribus

A vision for education must look ahead to the time when the education will be put to use, and must consider the threats and opportunities those being educated will face. The choice of what to include under the headings of knowledge, know-how, wisdom, and character will depend upon this vision of the future.

It is not enough to have a vision that relates to how the contents of education should change. We must also understand the changes required for the educational system itself. Under quality management there is much less of a focus on the curriculum.

Rather, the question is how should the *system* change to adapt to, and possibly influence, the future? The vision should not only anticipate the future, but should aim to meet the future in the best possible way.

Educational systems are complex. Teachers are professionals and should be so treated. Teaching and learning is what takes place when the teacher closes the door and starts to speak. The test of a vision for a school is the extent to which it influences what happens behind the closed doors.

The Bush administration produced two rather different visions for education. The Secretary of Education published "America 2000," which emphasizes national testing, high standards for math and science, and improved control over the physical environment in schools, specifically reduced drugs, greater safety, and better preparation for schooling.

The second vision was from the Secretary of Labor and is known as "A SCANS Report for America 2000." (See Table 1.)

In an addendum to the original SCANS report, the Department of Labor identified the following changes as desirable for K-12 education:

- Teaching should be offered "in context," that is, students should learn content while solving realistic problems. "Learning in order to know" should not be separated from "learning in order to do."
- Improving the match between what work requires and what students are taught requires changing how instruction is delivered and how students learn.
- High performance requires a new system of school administration and assessment.
- The entire community must be involved.

The vision of the U. S. Department of Education is basically a call for a return to older paradigms of education, with an emphasis on testing and competition.

Within that framework, schools are encouraged to try something new, anything. The underlying premise of the America 2000 approach is that having schools compete with one another is "good." The free market approach to education is "good." Developing national testing programs, which score and rank one school against another is "good."

America 2000 also calls for safe schools, elimination of drugs, and other enhancements in the school environment. It is legitimate to ask: "Why hasn't this been undertaken earlier? Why are these new goals for the future?"

I conclude that America 2000 does not begin with a vision of the future. It seems to be aimed only at repairing what is obviously wrong today. It is

Table 1: **The SCANS Report**

Workplace Know-How

The know-how identified by SCANS is made up of five competencies and a three-part foundation of skills and personal qualities that are needed for solid job performance. These include:

COMPETENCIES -- effective workers can productively use:

- Resources -- allocating time, money, materials, space and staff;
- Interpersonal Skills -- working on teams, teaching others, serving customers, leading, negotiating, and working well with people from culturally diverse backgrounds;
- Information -- acquiring and evaluating data, organizing and maintaining files, interpreting and communicating, and using computers to process information;
- Systems -- understanding social, organizational, and technological systems, monitoring and correcting performance, and designing or improving systems;
- Technology -- selecting equipment and tools, applying technology to specific tasks and maintaining and troubleshooting technologies.

THE FOUNDATION -- competence requires:

- Basic Skills -- reading, writing, arithmetic and mathematics, speaking, and listening.
- Thinking Skills -- thinking creatively, making decisions, solving problems, seeing things in the mind's eye, knowing how to learn, and reasoning.
- Personal Qualities -- individual responsibility, self-esteem, sociability, self-management and integrity.

certainly a step in the right direction, but it represents a limited, near-term vision, at best eight years out.

The SCANS report, on the other hand, presents a table of competencies that industrial representatives identified as necessary to a flexible, competent work force in the future.

In my opinion it is a much better vision for the future of education and provides much better guidance to educators. The proper test of a vision statement is not how high sounding it is, but rather whether it helps those who are trying to fulfill the vision.

A major strength of the American system of education is that the U.S. Secretary of Education does not have much power! Educational policy is in the province of the individual states, and within the states often is set by counties and school districts.

It seems to me that for the health of the nation, we should nurture diversity in educational approaches. We nurture "seed banks" to assure that in the future, no matter what plant diseases may arise, there will be a multiplicity of seed types from which we may obtain new strains.

Diversity in education should be reflected in the choices made with respect to the balance among knowledge, know-how, wisdom, and character, as chosen by different school districts.

I submit that it is healthy for the nation if different schools define these contents differently, but I also believe no school should omit any one of them.

My conclusion from studying the two reports is that it would be better for the country if the federal Departments of Labor and Education were combined. In any case, neither department, fortunately, has control over the contents of an education.

The main point I would make is that while quality management uses techniques to assure that whatever is done is consistent with the aims and goals of the enterprise, it does not dictate these aims and goals. Thus it seems incumbent on the local school boards and communities to decide for themselves what to include under the four headings: knowledge, know-how, wisdom, and character.

When discussing knowledge and know-how, it is important to define levels of competency associated with each. Thus we may desire that children at the fourth grade become competent in using a computer, but the level of competency to which we aspire for them should be different than for a university student.

The concept of *level of competency* is not new in education. Educators will recognize at once the relationship of these definitions to Bloom's taxonomy:

Level 1: Recall, remembering knowledge

Acquire by: reading, viewing, listening. Tell, name, list, define. Who? When? Where?

Level 2: Understanding, comprehension

Develop by: explaining, developing vocabulary, reflecting what has been said.

Demonstrate by: Giving main idea, predicting, evaluating cause and effect.

Level 3: Problem solving -- Given this, find that.

Develop by: Solving "textbook type" problems.

Demonstrate by: Solving problems on tests, providing relationships, formal presentations of solutions.

Level 4: Creative application, identifying problems in fuzzy situations. Creating new methods of solution for new classes of problems.

Develop by: Problem formulation in a variety of circumstances.

Demonstrate by: Original work, publishable in a journal or converted to product or service of use in the market or acclaimed by audiences.

When the school board, the superintendent, principals, parents and teachers, with some student representation, develop a specification for the contents, each competency must be described with reference to a level, using an agreed-upon scheme such as the one illustrated above.

Students should have a hand in developing agreed-upon descriptions of levels of competence. Only then can they become partners in improving the processes of teaching and learning. Of course the degree of participation will depend upon the ages of the learners. For adults the participation should be as equals.

My colleague, Theresa Hicks, has demonstrated that students can contribute even at the level of the second grade. At this level, they require considerable coaching, of course, but enormous implications for their future development as responsible co-managers of their education result from this kind of participation.

A useful tool for specifying knowledge and know-how is the "Quality Characteristics Evolution Diagram" or tree diagram illustrated in Figure 1.

The development of character is considered to be of paramount importance in kindergarten and the early grade school levels. As students move higher and higher in the educational system, wisdom and character receive less and less attention, until, at the level of the university, only the football coach seems to care about the development of character.

By character, we mean a collection of traits, such as honesty, initiative, curiosity, truthfulness, integrity, cooperativeness, initiative, self esteem, humility, ability to work in groups, ability to work alone, perseverance, trustworthiness, conviction, principled.

Each school district should generate its own list of the character traits it wishes to see in its students. The list should be developed with broad participation, including parents, representatives from industry, teachers, students, and the administration.

The selection of desirable character traits will not always be easy. For example, every community has questions regarding religious and sex education. The question of prayer in schools has been discussed ad nauseam, but no matter how the courts may rule and no matter how the matter may be decided legally, proponents of various views will not be silenced easily.

Quality management techniques such as nominal group technique, affinity diagrams, and other methods to organize thinking about complex problems provide methods for developing a consensus on difficult issues.

The key to developing wisdom and character is inquiry or project-centered learning. Students should undertake to do something they recognize as important and rewarding to do. It should be fun and serious at the same time.

The project should have an output, such as a service or a product. It could even be a proposal for legislation. The output could be an improvement in an activity within the school. Whatever is undertaken, there should always be a customer for the output.

We visualize the quality-managed school as developing its educational program around a number of student projects. Projects lend themselves to cooperative learning. Teachers and students can observe barriers to cooperation and can identify non-cooperative behavior.

Many educators have learned that when students engage in a project that serves others it brings out the best in students. Even those who were previously seen to be "problems" perform better.

The main difficulty for most teachers and administrators in project-oriented education is the changed relationship between teacher and learner. It is harder for the teacher to prepare a "lesson plan." In addition, methods to evaluate what has been learned are

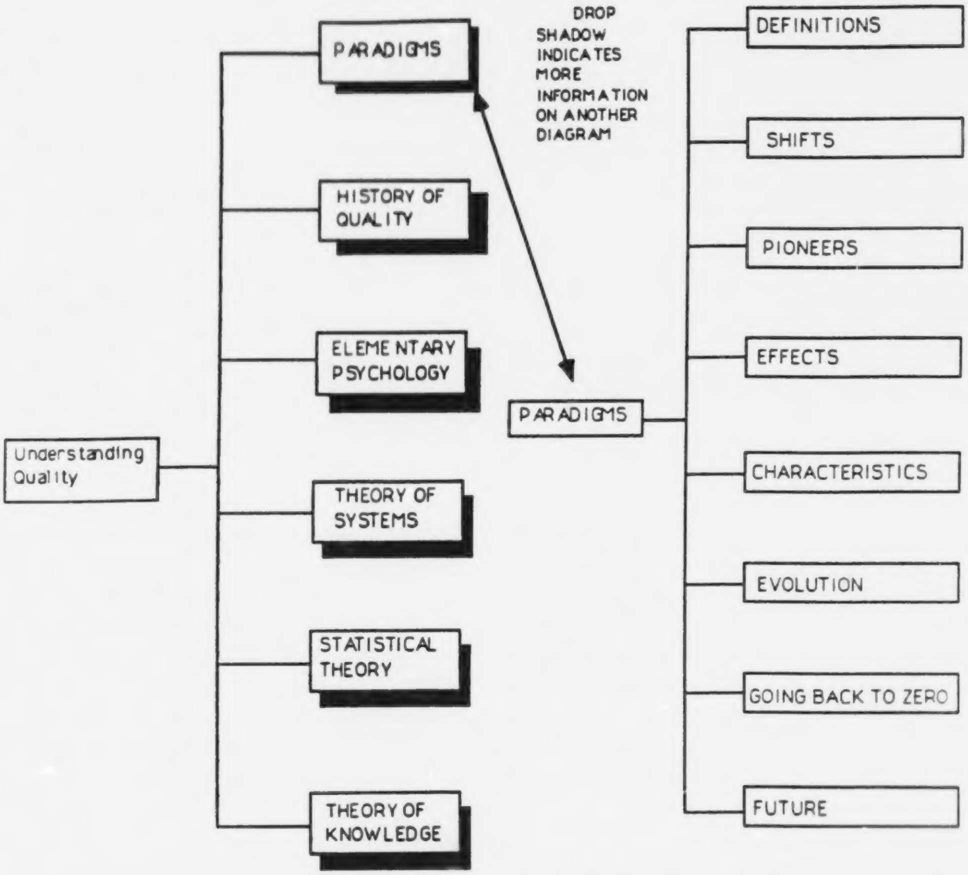

Understanding Quality
PARADIGMS
HISTORY OF QUALITY
ELEMENTARY PSYCHOLOGY
THEORY OF SYSTEMS
STATISTICAL THEORY
THEORY OF KNOWLEDGE
DROP SHADOW INDICATES MORE INFORMATION ON ANOTHER DIAGRAM
PARADIGMS
DEFINITIONS
SHIFTS
PIONEERS
EFFECTS
CHARACTERISTICS
EVOLUTION
GOING BACK TO ZERO
FUTURE

Figure 1: **Quality characteristics evolution diagram.** The drop shadow allows the diagram to deal with whatever level of detail is required without requiring a wall to display it; thus the diagram at the right shows how the topic "paradigms" would be expanded in another detailed tree structure.

more subtle.

In the old-fashioned approach, the students may be observed sitting silently as the teacher presents the information. Having presented a well-defined content, the teacher then uses a standardized test to see what the students have retained. The results of a standard test allow comparisons to be made among students or with other classes and with national norms.

Unfortunately, though the conventional approach is easier on teachers and provides "objective numbers" that may make some people feel better or worse, it does not address the purposes of education.

National tests do not touch upon the development of wisdom and character. They do not deal with know-how. They are harmful to students because half are in the lower 50 percentiles. And teaching to achieve test scores is *boring* for students and teachers alike!

Students at Mt. Edgecumbe High School in Sitka, Alaska, after a few years of experience with quality management methods, illustrated the changed relationship between teacher and learner as shown in Table 1.

The development of wisdom and character require different methods of instruction. This fact has been recognized in the second SCANS report.

The differences are summarized in Table 2.

Table 2: Roles of Teachers and Students

Teachers	Do **to**	Do **for**	Do **with**	**Enable**
Students	No choice Captive Antagonist Let me out!	Captive Passive Dependent I'm OK	Dependent, accepting follower It's OK	Independent investigator, seeker of knowledge; joy in learning
--------→ Direction of increasing autonomy --------→				

Table 3: The conventional classroom compared with the SCANS classroom

From the conventional classroom:	To the SCANS classroom
Teacher knows answers.	More than one solution may be viable and teacher may not have it in advance.
Students routinely work alone.	Students routinely work with teachers, peers, and community members.
Teacher plans all activities.	Students and teachers plan and negotiate activities.
Teacher makes all assessments.	Students routinely assess themselves.
Information is organized, evaluated, interpreted, and communicated to students by teacher.	Information is acquired, evaluated, organized, interpreted, and communicated by students to appropriate audiences.
Organizing system of the classroom is simple: one teacher teaches 30 students.	Organizing systems are complex; teacher and students both reach out beyond school for additional information.
Reading, writing, and math are treated as separate disciplines; listening and speaking are often missing from the curriculum.	Disciplines needed for problem solving are integrated; listening and speaking are fundamental parts of learning.
Thinking is usually theoretical and "academic."	Thinking involves problem solving, reasoning, and decision making.
Students are expected to conform to teacher's behavioral expectations; integrity and honesty are monitored by teacher; student self-esteem is often poor.	Students are expected to be responsible, sociable, self-managing, and resourceful; integrity and honesty are monitored within the social context of the classroom; students' self-esteem is high because they are in charge of their own learning.

Source: Fort Worth Public Schools

Putting Quality Management to Work in Schools: Getting Started

By Myron Tribus

If quality management is to be successfully applied in schools, the transformation must be led by an administrator, i.e., superintendent, principal, headmaster or headmistress, etc. What does that person do?

Figure 1 presents a process for getting started. This chart, called a Deployment Flow Chart, is one of the more powerful tools of quality management. It is not the *only* way to start, but it demonstrates some of the elements required for success.

The chart shows how personnel are deployed to accomplish a task. Deployment Flow Charting displays the work and how staff members interact with one another and the process. It is the only tool that displays these elements on one sheet of paper. The arrows leading into the boxes tell who should supply leadership. The drop shadow indicates that more detail is to be found on another related diagram.

The objective is to bring about a state in which all elements of the school work together in common purpose. This objective does not mean that it is impossible for an individual teacher to put some of the ideas to work in the classroom until everyone has agreed to the overall effort. If everyone waits for the leaders in education to start, we shall wait forever. Sometimes individual teachers have to begin anyway and do what they can.

However, unless the entire system is changed, the individual teacher will be frustrated. I would not advise teachers to wait until the entire system is improved before experimenting. Just be prepared for battles!

We should be grateful to those hardy pioneers who went ahead anyhow, without waiting for the entire system to change before they tried quality management in their limited areas of control. They have provided us with tangible evidence that the approach works (in a limited way) and have given us a glimpse of how things could be.

To a certain extent, the introduction of TQM in a school is more easily accomplished in connection with administration and maintenance, for these activities are similar to many activities already carried on in industry. In these applications, considerable help can be obtained from people in industry who are already practicing quality management.

Locate nearby companies already involved in TQM. Experience shows they are often willing to help.

Introducing TQM in the classroom, however, is more of a challenge. Fewer people are around to help. Although the new paradigm for quality education differs from the approaches mandated by many people in authority in the school system, it is not that far removed from what many teachers want to do but cannot because the system will not allow them.

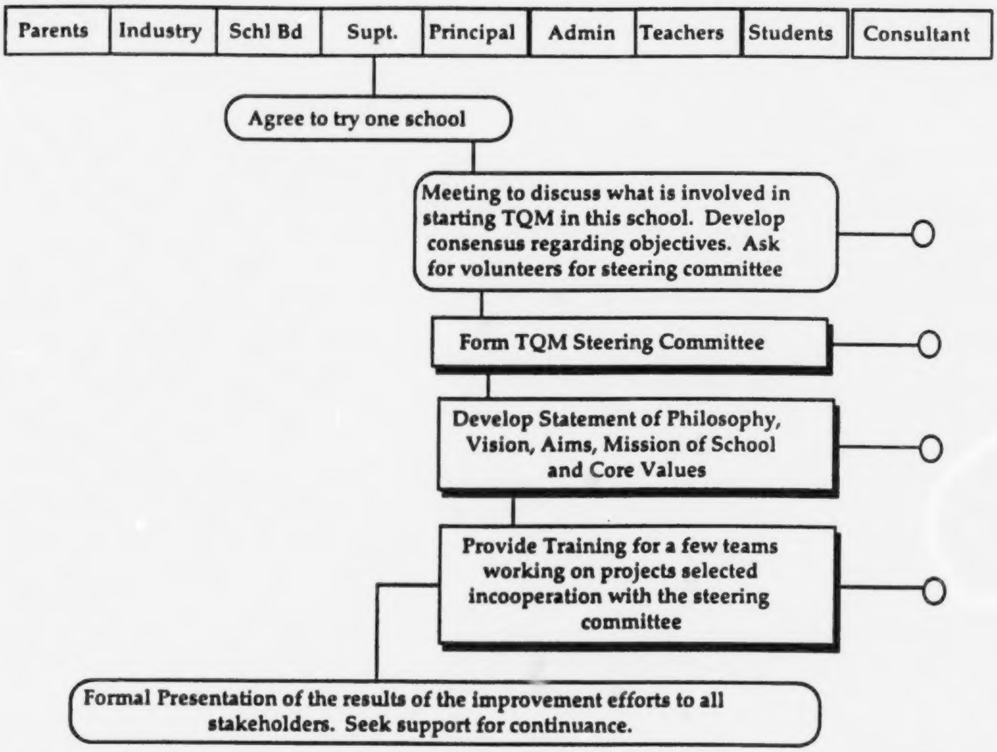
AASA has established a network of people interested in TQM in education and those who wish to pioneer can obtain considerable help from others of like mind who have signed up for the network. All that is required is a fax machine and the address list.

These things characterize TQM in the classroom:

1. **The student as co-manager of the teaching/learning process.**

The teacher and learner should, at the beginning of every session, and especially at the beginning of the semester, review and discuss their mutual objectives. The teacher should re-

Figure 1: Deployment flow chart. A way to put quality management to work in schools


Parents
Industry
Schl Bd
Supt.
Principal
Admin
Teachers
Students
Consultant
Agree to try one school
Meeting to discuss what is involved in starting TQM in this school. Develop consensus regarding objectives. Ask for volunteers for steering committee
Form TQM Steering Committee
Develop Statement of Philosophy, Vision, Aims, Mission of School and Core Values
Provide Training for a few teams working on projects selected incooperation with the steering committee
Formal Presentation of the results of the improvement efforts to all stakeholders. Seek support for continuance.

One way to get started, with leadership from the top. The lines show who should provide leadership in the activities. In this example, the school principal is the leader. The small circles indicate help from the consultant. Each box represents a task. The elongated boxes with rounded corners represent meetings. A drop shadow on a box indicates that more detail can be found in another diagram. (Based on a suggestion from Larrae Rocheleau, Superintendent, Mt. Edgecumbe High School, Sitka, Alaska)

view and develop class consensus on the knowledge, know-how, wisdom, and character trait he or she expects to be developed. This is the most important step in the process, for without a consensus concerning what is to be done, the cooperation so essential to co-management will not develop.

At the lowest levels, say in K-12, teachers rarely need to argue with the children about what should be learned. Experience shows they are eager learners at that level, unless their home conditions have militated against it. Head Start and similar programs provide examples of what to do to overcome this handicap.

As one moves higher and higher in the system, students become less eager to learn particular subjects. "Do I have to take algebra?" they ask. If the answer is "Yes, you must; it is required," the teacher may be asserting authority but it is unlikely that the student will be ready to give the extra effort that leads to a quality result.

One of the most important tasks of a teacher is to provide a basis for internal motivation toward a subject. This is why the SCANS report emphasizes the doing of work as a part of learning. Applications of algebra to everyday life are plentiful, and a good teacher can always show examples that will interest most students.

People learn best when they feel the need to know. Projects will inevitably deal with the need for algebraic manipulations and these ought to be introduced before students are formally introduced to algebra. With such experiences behind them, students are more likely to accept that it is a rational requirement.

In the end, of course, people often have to "take" something they do not want. In a TQM-managed school, however, this forced feeding will be a rare event.

An essential part of the consensus building is the definition of the levels of competence required. The teacher should have in mind some minimum level to be required of all students but should not inhibit those who wish to go beyond.

Consensus should be established on how the competence is to be displayed, what the students have to do to demonstrate they have achieved the level of competence agreed upon, how they are expected to acquire it, and how the teacher will help. How the teacher and learner will know the competence has been attained should also be agreed upon.

Many teachers have had such poor experience with students that they do not believe that a consensus can be developed and that the students will then stick with it. Teachers have described their experiences in producing this consensus, even in inner city schools and with students from homes where drugs and child abuse are common. These reports are becoming available now and are most heartening.

Theresa Hicks, who has been experimenting with this approach in the second grade, says the children are fascinated with the chance to help set the rules. They will often help the teacher establish better discipline, self discipline, than could be achieved before.

The teacher may have to intervene to prevent the children from becoming too harsh in dealing with students who disturb the learning environment. The teacher may use these occasions as a way to introduce elementary considerations of psychology in a practical context.

2. Using internal rather than external motivators.

One of the most difficult aspects to let go in the older paradigms in education is the use of external motivators to make the children do what is desired. "Spare the rod and spoil the child" lives on in the minds of many teachers and parents, even when physical abuse is prohibited by law.

Teachers who pioneer in quality management in the classroom and rely on intrinsic motivation will have to deal with criticism from well-meaning colleagues, parents, school boards, and even some unenlightened employers.

For most teachers, the problem is not so much just to let go of the old ideas. Rather it is knowing what to do instead. So many of us are habituated to using external motivators that we often feel we are not doing our jobs if we leave them out.

Examples of unhealthy external motivators include these:

a) Competitions for prizes
b) Grading students "on the curve"
c) Threats regarding poor performance
d) Special honors for good performance
e) Segregation of students into different classes by "ability"
f) Criticism without appreciation of accomplishment.

Internal motivators are called into play when a learner understands what it means to do something very well, has had a hand in setting the rules whereby an excellent job is to recognized, knows that someone shares the joy of knowing the job was well done, and is taught to self-assess the work as it is ongoing.

The key is not just to make students *responsible*, it is to make them *respons-**able***.

When we say that students should be made *response-able*, we mean that the teacher should make certain the learner has available the tools required for self improvement and for improvement of processes.

Older students can profit from the excellent book by Covey.

Seeing self improvement when it has been documented is a pleasure. This is the strength of the Boy Scout and Girl Scout merit badge system.

The badge shows that the student has been examined by someone who agrees that the work done was of good quality. It was not part of a contest. Anyone who can do the required tasks can earn one.

The standards are (or should be) rigorous. The examiner helps the youngster if the job is not right and provides coaching to get it right. The badge does not signify that someone else has been beaten. It signifies conquest of self.

A powerful stimulant to internal motivation is to be part of a team in which each member of the team relies on the output of the other team members. This self motivation, which is so evident in sporting events, also takes place in group projects. For example, a team of second graders decided, with encouragement from their teacher, to develop an inexpensive egg incubator that might be used to help protect endangered species.

With this objective in mind, the team needed to investigate such topics as at what temperature to maintain the eggs, how to protect the eggs, what to do when the eggs hatch, etc. Each student investigated a different part of the project and reported back to the group. The internal motivation was intense. Reading, listening, and presentation skills were developed almost as a by-product.

The cooperative spirit can be quickly destroyed if students are set to competing for grades.

The teacher should discuss with the students:
a) the objectives for the class, in the development of wisdom and character;
b) how the teacher and the students dents will know whether they are progressing.

Of course this means the introduction of topics not normally introduced at the lowest grade levels, but the omission of this emphasis on the development of wisdom and character is a modern phenomenon.

A review of the McGuffey readers used so widely at the turn of the century shows deep concern for the development of character and wisdom that our forefathers had. For a generation of youngsters growing up on farms, it probably worked, for a farmer cannot be of poor character and succeed. Nature is more unforgiving than an urban society.

I do not propose to redeem to the McGuffey readers, for they are inappropriate to our times. The objectives remain, however; the means should change.

Some principles carry over, unchanged, from industrial experience

Experience with quality management in industry may be distilled into a few simple principles.

The Process-First Principle:
The quality of the product is determined by the quality of the process that produces it. If you want to improve a product or

service, concentrate on improving the process that produces it.

Assistant Principal Franklin P. Schargel of the George Westinghouse Vocational and Technical High School in Brooklyn gave me the following example of the application of this principle.

The administration was concerned over the number of students failing their subjects. Student failures are extremely expensive, for they create increased costs in money, time, and effort in later years. At some critical value of failure rate, the entire system will come to a halt.

The process leading to success or failure involves the giving of assignments, discussion with students, homework, testing, and the general interaction of the teacher with the class.

A flow chart may be made by students and teachers depicting the processes that occur between the time the student receives an assignment and it is completed and evaluated.

A study of students who were failing showed that the critical problem was their failure to do the homework. Other problems revolved around language, reading ability, etc., but a Pareto diagram of the causes of failure showed that this was by far the largest item. To reduce failures, therefore, the learning processes of the failing students had to be changed.

The causes behind the failure to do homework were examined; the process associated with just doing homework was studied in detail, and several reasons for failure to do homework were found. Most were beyond student control (i.e., systems problems -- Juran's principle).

Therefore, special time was set aside during the school day and student tutors were assigned. In short order, the failure rate declined by half. By concentrating on the processes and not just increasing the pressure on teachers or students for the desired result, the failure rates were reduced.

At Mount Edgecumbe High School in Sitka, Alaska, students were taught to analyze their own study habits, after which the results on tests improved. But more important than that, they participated with their instructor in examining all aspects of the teaching/learning process. The teacher also changed what he was doing. By concentrating on the process, together they improved the product.

The role of tests and testing

Deming's Point #3 is "Cease dependence upon mass inspection."

This point translates directly into education. The change parallels what has been learned in industry. For years American managers hired inspectors to inspect the work of employees. Quality did not really improve; rather, the poor quality work did not get out. Costs went up and the customer saw mostly what was just good enough to pass inspection.

Dr. Deming told me that when he went to Western Electric in the 1920s, 30,000 people were making telephone sets and 10,000 people were inspecting their work. The job of the workers was to get their product past the inspectors and the job of the inspectors was to catch them if they did something wrong. This is no way to reduce cost. It is no way to achieve improved telephones. It is no way to work.

The only legitimate purpose of an examination in the classroom is to help the teacher and learner decide what to do next. Students and teachers should agree on what is to be accomplished, how it is to be judged, what level of competence is minimally acceptable, and how it will be demonstrated. Students at Mount Edgecumbe High School coined the phrase, "If it isn't perfect, it isn't done."

This does not mean that all work is equivalent. Some students may aim for a higher level of accomplishment. For example, one student developed a computer program giving an encyclopedia-like discussion of certain plants in Alaska. So did other students. Each student handed in perfect work but some students made much more extensive contributions than others.

Some people worry that without grades, potential employers will not be able to judge potential applicants for employment. But grades do not bear upon the competencies cited in the first SCANS report. Evidence of accomplishment should be developed by citing accomplishments.

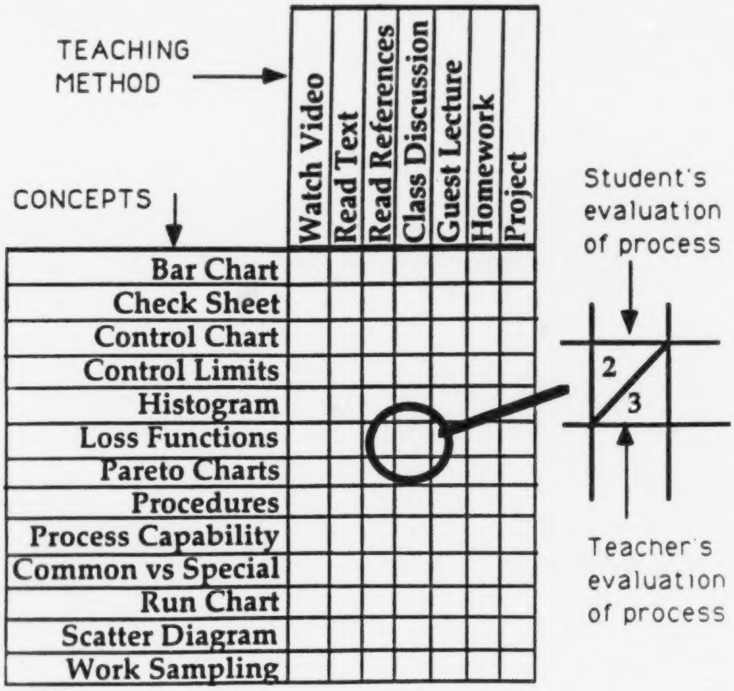
The second SCANS report proposed that each student develop a dossier, with accomplishments listed and signed by appropriate faculty and others who would attest to the correctness of the descriptions. Students should aim to develop the best list of demonstrated competencies they can. The school should describe the minimum standards to which all students are held. This description should include complete details insofar as the administration and faculty are prepared to authenticate it.

The SCANS report gives a sample dossier. This approach is much superior to the giving of grades and the ranking of students or schools.

How students help the teacher improve the learning process

Figure 2 shows an adaptation of a "Quality Function Deployment Chart." The rows represent the elements of knowledge and know-how the teacher and students have agreed represent the learning objectives in the class. The columns represent the experiences the teacher has arranged for the students to have.

Figure 2: Quality function deployment chart. An approach to improving the teaching/learning process


TEACHING METHOD
CONCEPTS
Watch Video
Read Text
Read References
Class Discussion
Guest Lecture
Homework
Project
Bar Chart
Check Sheet
Control Chart
Control Limits
Histogram
Loss Functions
Pareto Charts
Procedures
Process Capability
Common vs Special
Run Chart
Scatter Diagram
Work Sampling
Student's evaluation of process
2
3
Teacher's evaluation of process

The intersection of each row and column has room for two numbers. These numbers represent the students' and teacher's evaluations of how well the experience helped the student. The numbering system should be worked out (probably by a team of students) so that when numbers are assigned they have approximately the same meaning to everyone.

The numbering system should be very crude, say 0 to 2 meaning "no value," "some value," to "very valuable." The numbers, in themselves, should not be given any significance, but the ratings can be the basis for discussion and improvement.

The main objective of the teacher is to put quality into education, which may be defined as "what makes learning a pleasure and a joy."

Some measures of student performance may be increased by threats, by competition for grades, or by prizes, but the attachment to learning will be unhealthy. It requires a quality experience to create an independent learner.

Joy in learning is ever changing. What is thrilling at one age is infantile at another. Teachers must be ever alert to engage the students in a discussion of what constitutes a quality experience. The negotiations and discussions are never done. It takes constant engagement to wed a student to learning.

Once people have learned to walk, they will not revert to crawling. Once students have tasted the joy of learning in an educational institution that runs according to quality management principles, they will not accept something inferior. I have met only a few students who have moved from a quality learning experience to the conventional classroom. They are so few that they have no option but to keep a low profile while they seethe in anger. They tell me so.

As the quality revolution in the classroom catches on and more students understand what quality in education can be, it is inevitable that they will reach a critical mass. When these students enter our universities in large numbers, they will make a difference, for that is the nature of their training. I look forward to that day.

On the Road to Quality

Total Quality Management can provide the continuing information and management support all school personnel need to get a little better every day at teaching and learning.

LEWIS A. RHODES

I was halfway out the door heading home when the office phone rang. "You don't know me," the voice said. "I'm a middle school civics teacher in Sioux City. I read your Deming articles," he continued, "and I want you to know that for me Deming is the last great leader of the Enlightenment. . . . He's provided the final, and missing, element of natural law."

Normally a comment like that would have surprised me. But this was one more of a series of unanticipated reactions evoked by an article I had written six months earlier about the acknowledged founder of the quality movement, W. Edwards Deming (Rhodes 1990). What was going on? For example, "For an administrator who just 'hung it up' after 29 years of trying to influence public education, I found Deming's words heartening." The most frequent reaction, however, was "I thought I was the only one who saw possibilities for schools!"

These, and other reactions, were different from those I'd heard regarding other "new" ideas in education, and they started me on a yearlong quest to discover why. This article suggest some answers.

Why Quality? Why Now?

It's relatively easy to answer the question, "Why has America suddenly become so interested in quality?" One need only listen to economic news about America losing the productivity race to world-class competitors.

However, it's more difficult to find answers to why these ideas are proving so attractive to educational practitioners, even before being touted by university-based theorists or outside reformers. Why the growing interest and commitment when there are no full working educational "models" as there are in other systemic programs such as Outcome-Based Education? Why such appeal, when few can even agree on a definition of "quality"! And why such seeming understanding now, after decades of exposure to many of the same ideas in the writings of organizational researchers and theorists such as Drucker, Herzberg, Argyris, Likert, Maslow, and McGregor?

Apparently Deming's words and ideas resonate with something that many people already personally believe is "right." The ideas seem to validate long-held feelings of working individuals who know they want to be effective in their jobs, and who by and large have given up on their organizations ever acting as if they believed it, too. As one midmanager, whose organization had sent her to a Deming seminar, realized with a shock, "You mean our organization might actually do this . . . when now they're rewarding people for doing just the opposite?"

It's becoming clearer to me that the power of Total Quality Management concepts of Deming and others derives (1) from their psychological and value-driven base, and (2) from their "totalness." They deal with an organization's work processes as a single system.

As one elementary teacher wrote to me, "Schools have a head start over industry in implementing quality concepts because we have a better foundation in psychology and human development than industry." On the other hand, it's also clear why school people don't feel they can act on those principles. The prevailing organizational paradigm has all the characteristics of a dysfunctional family. That is, its members believe that their present roles and relationships (isolated practitioners, relying on little but their own experience and expertise to respond to children's needs) are the way things are supposed to be. If there's a problem, they — not their "family" — are the ones responsible and in need of fixing.

Until now, this dysfunctional condition has characterized most modern organizations — not just schools. Humans are born as purpose-driven, trial-and-error learning, self-regulating organisms. But most organizational life limits this natural behavior.

Regardless of what Herzberg's (1959) research might have told us about the power of intrinsic motivation and the ineffectiveness of external rewards, we could not imagine our work settings existing without grading, evaluating, and labeling the people in it. We could not imagine that "top" organizational leaders would be willing to give up what seemed like the power of problem solving and decision making to those on the "bottom." Moreover, with little experience to support it, we really haven't believed that total organizations could change.

So what happened? In a way, W. Edwards Deming has done for management of work processes what Roger Bannister did for the 4-minute mile. Deming's work in Japan provided evidence that something not believed possible was possible. Total organizations could change, it could cost less to produce quality results, and the brain power of the workers on the front line could be an organization's most valuable resource.

A Student's Eye View

Total Quality Management (TQM) has been termed "a thought revolution in management" (Kim 1991). For business and industry, it created a fundamental paradigm shift by refocusing attention on the "customer" whose needs, requirements, and potentials must now drive the work process. In industrial TQM, the *voice of the customer* provides the information an organization must have to remain responsive. In education, our paradigm shift also involves seeing things through the eye of the customer.

I started out the year thinking that Total Quality Management could help all those involved in schools to view their actions from a perspective that had a "customer/student" at the center. Today, my concept of student-centeredness has changed, and along with it my understanding of the potentials of TQM for education. I had always been bothered by critics' declarations that education is too process-oriented and not sufficiently student-centered. On the contrary, I had observed that student-centeredness already was the cause of some of education's most serious management problems. Underlying most decisions in educational practice has been the unstated belief: this is what's best for the kids. The separate acts of teachers, administrators, and board members alike are driven by their personal views of what's best for children. Unfortunately, the potential power of this common focus has become instead a fundamental weakness because decisions are made in isolation, with no way to take advantage of relationships to others who share the same goal.

> **Apparently Deming's ideas validate long-held feelings of working individuals who know they want to be effective in their jobs and who by and large have given up on their organizations ever acting as if they believed it, too.**

The work of schools has been student-centered in the same way that the work of a basketball team might be called "hoop-centered." The success of the whole team (organization) is tied directly to success in putting the ball through the hoop. But imagine a team in which the centers, forwards, and guards were each trained separately and each provided with opportunities to individually practice the necessary decisions and moves for putting the ball through the hoop. What would happen when they came back together to play a real game? Because of their "hoop-centeredness," each would attempt to shoot directly for the basket every time he or she got the ball. The result: many cases of individual "success" but a team that most often would lose the game.

What does that metaphor have to do with paradigms for education? Keeping the student foremost in our thoughts has little to do with shifting our sense of the system. We still are looking *at* the student. The total quality view allows us to see *with* a student's eye view — to understand what the school and the world around it looks like to children growing up today.[1]

This student's eye view also allows us to understand that there are always two parallel "systems" in operation. One we control through planning and operational management decisions to achieve the *results we want*. The other "system" is composed of all factors that influence the *results we get*, whether or not we can control them.

Two Parallel Systems

The "two systems" view of schooling may help explain why the work processes of the central office and the classrooms seem so disconnected. Each is responding to a different criterion. As an example, the work of curriculum developers in the "first system" starts with what students *must know*. This first system then provides educators with goals for general direction-setting, as well as general support for attaining them.

The work of daily instruction, on the other hand, takes place largely in the "second system." It starts with, and must respond to, what students *already know*. And much of this base of knowledge increasingly is a product of the "second system" — the one over which educators have little control. As Bill Moyers has noted, the *popular culture* is the "most powerful chancellor, superintendent, principal, or teacher in America" (1990). The images and fragmented reality that children confront every day and from which they evoke meaning and values provide the canvas and frame on which schooling starts. And because this starting point on each student's learning journey is constantly changing, those planning and helping students make that journey must have access to continuing information about where each child is.

This continuing information becomes necessary for appropriate and effective instruction. But until now, districts have not had tools and processes to support a classroom capability for this degree of diagnosis and prescription. Information has been pulled out of classrooms to support others' decisions, instead of being moved down and made accessible to those who could more readily act on it. Compounding the problem, America's concern for the *results* of the learning journey currently overshadows the vital need to know where you are at all times. While goals are an obvious direction-setter, if you're not where you think you are when you start out, you can totally miss your goal.

Until now, in both public and private sectors, *systemic* strategies such as strategic planning, mission development, and visioning have been effective ways to develop and gain agreement on desired results. But we have lacked comparable systemic processes that can be used to accomplish the results through continually adjusting the work environment. In education, without such processes to bridge the two systems, many current reform efforts have attempted instead to shrink the boundaries of the two until they appear as if they can both be addressed by building personnel.

When decisions by teachers, administrators, and board members are made in isolation, there is no way to take advantage of relationships of others who share the same goal.

A Quality Lens Applied

Districtwide TQM provides, in effect, such a bridging process: a process of *strategic management*. Building on the context and direction-setting provided by systemwide agreement on outcomes, it focuses the total system's daily attention on the "other end" of the process — where the students really are, and it brings to the work setting the strategies necessary to continually generate information required to maintain a journey of incremental improvement between the results we plan for and those we're actually getting.

One shorthand way I've begun to think about what TQM might be like in practice is to imagine a school district entirely staffed by developmentally appropriate educators. These practitioners — usually found in early childhood and special education — always start where the child "is." They do this, not because they know more than other educators, but because in most instances they have no other choice. The realities of disabilities and age (try to group 2-year-olds and keep them quiet) prevent them from making the *management compromises* "regular" educators, operating as isolated practitioners, have to make. The daily negotiation between quantitative curriculum requirements and the qualitative needs of 20-30 individual children — within the fixed limits of time, space, and accessible resources — leaves most isolated practitioners grasping the most manageable alternatives. Most of the "bad" things that reformers rail against — lectures, standardized tests, ability-level grouping, bell schedules, uniform texts, marking on curves — are merely practical ways for isolated practitioners to handle on a continuing daily basis the scope of that management task.

Applying a quality lens to schooling allows us to see management as the common work of the school practitioner and of the administrator. Both create and manage environments in which others can work, and continually learn from their work. Both are decision makers who must solve the same basic problem: how to combine what they know with the resources they have to best meet continuing learning needs. This work process is little different than in industry today where, as Shoshana Zuboff notes, the changing requirements of work have made it necessary for workers to become learners and for managers to become teachers — that is, to provide environments where workers can learn from their continuing experience (1988).

No Substitute for Knowledge

One final point I've learned this past year has been that I am not alone in my search for the meaning of TQM for education. We each seem to start out by trying to understand it in terms of what we already know. This is no easy task because so much of what we know is filtered through other beliefs, and TQM challenges many of them.

This portends a period of time when we all will be engaged as much in unlearning as in learning. It will also require that as educators, we be able to untangle our perceptions of ourselves as cognitive, purposeful beings from the jumbled web of "everything-connected-to-everything-else" that comes to mind when we think of learning, teaching, and schooling. All three are, and must be managed as, learning processes.

Moreover, as educators and non-educators attempt to translate into schooling business terms such as "customer," "supplier," or "product," new insights may develop that illuminate the more complex work processes of schooling.

For instance, our "customer" may not have chosen to be one. Unlike industry, the "raw material" that emerges as our "final product" never belongs to us at any point during the process. We can have no "scrap." External judgments of the quality of an industrial product are made after the development process is complete. External inspectors of education's products and processes are daily facts of life.

Current pathways to this understanding of schools as organized work systems and the relevance of TQM to them seem to follow one of the three directions. Perhaps the easiest route is to start with translating Deming's *14 points* into education. (For further discussion, see also "Lessons from Enlightened Corporations," p. 71.) This usually is a rewarding group experience because it uncovers how much agreement there is about what's wrong with the ways we manage ourselves in organizations. One important caveat, however. The 14 points are not a sequential checklist. Much like the "Ten Commandments," these 7 do's and 7 don'ts merely illustrate the ways people would behave if they bought into the philosophy underlying them.

The total quality view allows us to see *with* a student's eye view — to understand what the school and the world around it looks like to children growing up today.

This is why Deming subsequently had to develop his *Theory of Profound Knowledge*. "Hard work and best efforts, put forth without guidance of profound knowledge, may well be at the root of our ruination. There is no substitute for knowledge. . . . We are being ruined by best efforts directed the wrong way. We need best efforts directed by a theory of management" (1989).

As statements of what people need to believe and know, each of the four areas of *Profound Knowledge* challenges a prevailing mental model loaded with unquestioned assumptions. Each forces one to confront what he or she accepts about people and processes in organizations with what they intuitively "know."

For example:

- His concepts about *systems* confront what, because of our acceptance of the isolated practitioner paradigm, we believe about the lack of interdependency in organizations.
- His thoughts about people, as *psychological beings intrinsically motivated* to want to be effective in their work, force one to apply to others a principle that some of us may think applies only to our selves.
- His demonstration that management's processes are the causes of up to 90 percent of the variation in outcomes and results in any system challenge directly our attempts to improve schools through monitoring of results, then assigning blames, and trying to fix individuals.
- And his *theory of knowledge* forces awareness of humans as cognitive beings trying to construct knowledge from experience within frames provided by theories and beliefs. In a confusing way, his four elements of *profound knowledge* are themselves an illustration of this one element.

It would seem logical to enter into an understanding of the implications of Deming's ideas through the portal of profound knowledge because it is the sine qua non for long-term commitment. However, initially this path may not provide as many easily glimpsed signposts as the 14 points, and it can require skilled facilitation to help people "let go" of their paradigms.

But What Does It Really Mean?

Finally, because TQM is a process designed to make continual improvement a fact of organizational life, it has been natural to attempt to contrast it with other "improvement" strategies such as Outcome-Based Education, Effective Schools, Accelerated

TQM can provide a broadly applied constructivist approach within which students, staff, and the organization itself are each engaged in continually creating meaning.

Schools, and Essential Schools. While a point-by-point comparison may help communication, it can blur a fundamental difference between *improvement* processes and *management* processes. Whether true or not, the former tend to be perceived as processes with *change* as a goal. Total Quality Management, on the other hand, connects the "where-we-are-ness" of daily practice to the "where-we-want-to-go-ness" found in the organization's goals. Change becomes just a natural consequence of people managing themselves in a way that allows them to get a little bit more effective every day. The result: continual growth in *total* organizational and personal capacity to act differently.

What seems increasingly clear to me as I've tried to describe TQM in terms of current educational understanding is that it can provide a broadly applied constructivist approach within which students, staff, and the organization itself are each engaged in continually creating meaning, acting based on that new meaning, and being involved in processes that increase their capability to act again. My current definition of TQM is relatively simple:

Total Quality Management is a value-based, information-driven management process through which the minds and talents of people at all levels are applied fully and creatively to the organization's continuous improvement.

[1] Remember, the oft-cited Copernican paradigm shift — from a view of an earth-centered universe to one that was sun-centered — was not accepted for several generations because people had to intuit the new system concept. No one could stand on the sun, look up, and find that Copernicus' logic was immediately apparent.

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VIEWPOINT

Times of Scarcity Demand Cooperation

BY KOSAKU YOSHIDA
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What is quality improvement? W. Edwards Deming teaches that the first step toward improving quality is to reduce the variation in products. For example, according to quality standards, every car of a certain model must achieve the same approximate mileage.

Likewise, if our students are considered the products of our educational system, student performance must be uniform for quality education to be achieved. Reducing variation or diversification is the key to achieving quality education—something that currently is missing from the tradition of American education.

One of the most effective approaches in reducing variation in education, as in any social phenomena, is to encourage cooperation. Within a cooperative school environment, students who progress faster help slower students. Sharing knowledge and learning from each other reduces the variation among the students in performance, with the average level of performance often increasing.

Competitiveness is a deeply ingrained characteristic of American culture. However, when individuals are encouraged to compete with one another, those above the average rise even higher while those below the average drop even lower, widening the variation. Those who perform greatly below average do not have the ability to participate fully in competition. Ask yourself this: If you know from the beginning that you will lose in a competition, will you bother to enter?

Because school choice programs are based on the principle of competition, they contradict the concept of quality management. Competition means producing losers when somebody takes a big piece of the pie.

Competition among schools can only widen the gap between the best and the worst schools. This must result because a choice program intends to increase rather than decrease variation within school performance, and then cuts off the lowest end to decrease variation. From the perspective of quality management, this decision is the opposite of the action we should take.

As long as the government or society can afford to save the losers in competition and support the upward movement of those at the lowest level of achievement, competition can stimulate the motivation of people, as the United States once was able to do.

However, when no one can afford to continue supporting those who lose, those with no education and no jobs are left stranded in the streets. Eventually, society—more specifically, every taxpayer—has to take care of these people. Each of us then must look after the losers of competition. Can we still afford to do this? Competition is quite expensive. That's why in Japan, where the society could not afford the price tag of competition, competition has been discouraged historically.

Cooperation, on the other hand, saves money. Cooperation means sharing, sharing everything—resources, knowledge, and experience—so that the duplications in effort or time are minimized. More importantly, from cooperation we can expect to achieve synergetic results wherein the entirety is always more than simply the sum of the individual parts. That achievement means a higher average with smaller variation.

Cooperation developed as a guiding principle in Japan and other Asian countries to meet the needs within environments with extremely scarce resources. For perhaps the first time in American experience, resources are becoming scarce in America. Cooperation becomes the only reasonable method in times of economic hardship.

To facilitate cooperation among schools, we definitely need national standards in education. Basically we must decide what kinds of knowledge and what level of knowledge achievement high school graduates must attain as American citizens in any and all high schools. Fundamental to achieving overall quality in education is aiming at narrower variation in proficiency in basic subject areas.

Cooperation within education nationally means teachers and classrooms can share the resources at all levels, from the federal and state levels down to school districts and individual schools. In this way, the current immense duplications in time, money, resources, and efforts can be avoided.

Cooperation also could foster among American educators an enhanced focus on their common goals, greatly facilitating exchanges of information regarding methodology, as well as sharing of experience in how to make more improvements in American education. The guiding principle for such achievement must be cooperation.

Recapturing the Spirit of Learning Through a Systems Approach

BY PETER SENGE and COLLEEN LANNON-KIM

Transformational
Leadership

Mark, a substitute drama teacher at the Orange Grove Middle School in Tucson, Ariz., is struggling with his eighth-grade class. The regular teacher left the students a difficult assignment that involves forming small groups and presenting a dramatic reading.

But the students have a two-day field trip planned next week to see firsthand how the court system works and to prepare for a mock trial. Mark worries that since the groups will have just begun meeting on the first project when the trip starts, the momentum of the project will be broken and the students will have to start over.

Mark brings his problem before the weekly eighth-grade team meeting. Together, the teachers discuss his concerns and consider whether the field trip should be postponed. The team leader asks the government teacher, who has organized the trip, whether she still plans to require the students to write a "screenplay" of the dialogue for their trials beforehand.

"Since they are studying character development and conflict in literature class," he offers, "it might make sense to have that be their literature assignment, and then have them act it out for the drama class instead of doing the group project."

The other teachers accept the idea enthusiastically. Mark believes the

court cases will make great drama presentations, and the government teacher says the students will be more engaged in the court case if they spend some time actually "living" the role of a judge or an attorney.

"In a normal school situation, that substitute would have been stuck in that classroom for a week and a half with a disaster on his hands," comments the team leader after the meeting. "Those kids would have been going nuts in there. And the rest of us would have seen it in our classroom but we wouldn't have had any idea what was wrong. The problem wasn't just Mark's—it was a system-wide problem that we all had to deal with."

A Learning Organization

Team meetings like this are an example of what the staff at Orange Grove calls a "systems approach" to education. "Our goal is to increase the effectiveness and efficiency of our total system," explains Principal Mary Scheetz. "In order to do so, we need to break that total system into manageable subsystems with common focuses or purposes, like teams for each grade. Group events help maintain an understanding of the relationship of the parts to the whole and address common concerns."

Orange Grove is one of a small number of schools nationwide leading a movement to transform schools into "learning organizations." Says Scheetz: "Systems thinking is our conceptual cornerstone, but it is really the combination of systems thinking and the related disciplines of building shared vision, working with mental models, team learning, and personal mastery that hold it together."

"Without a shared vision," she explains, "people have no idea of what they are trying to accomplish by improving the system as a whole. And they will make little progress if they do not know how to reflect on their own assumptions, especially within their work teams.

"Personal mastery for us is a sort of anchor. When all is said and done, the school must create an environment where everyone—students, teachers, staff—has the opportunity to continually enhance their capacity to create results that really matter to them, that is *to learn*."

With prescriptions for turning around America's schools coming from every part of the political spectrum, re-conceiving schools as learning organizations may be the overarching vision needed to guide the difficult changes ahead.

> Systems thinking is a discipline for seeing wholes, recognizing patterns and interrelationships, and learning how to structure them in more efficient ways.

"How can we expect kids to become committed to learning if the overall environment isn't committed to learning?" asks Jim Daniel, president of the Kentucky Educational Foundation, which is playing a significant role in reforming the state's K-12 educational system. "The problem has been that forces throughout the educational system have worked to make protecting special interests more important than continually improving the system as a whole."

Turning schools into learning orga-

We've all been taught since an early age to focus on symptoms rather than underlying causes.

Applying the Systems Approach in the Classroom

The five learning disciplines are for facilitating learning within classrooms.

At Orange Grove Middle School in Tucson, Ariz., the systems approach also is used as a conceptual framework and methodology for enhancing students' understanding of subjects. In classes, systems thinking gives cohesion to disparate facts. Inert subjects come alive through the use of computer simulations, as students test out their own ideas of how elements interact in a complex system.

In a project called "New State Park," Orange Grove students researched park philosophy and management, land management, recreation theory, social systems, geography, ecological community theory, and politics.

"They then used their newly acquired knowledge to design a new park with a $100 million budget," explains teacher Frank Draper. "The park had to include land required by the park's charter, yet deal effectively with a threatened lawsuit if they desecrated nearby Indian burial sites; be attractive to users, yet not cause appreciable environmental degradation."

As the students designed the park on the computer, Draper says, they used a spreadsheet to keep fiscal accountability and a simulation model of park development and environmental degradation to keep design accountability.

Not only does this integrated approach engage students' interest, it accelerates learning. Through projects such as the New State Park, students not only cover traditional material, but they gain additional understanding of the subject because of the integrative format.

Pamela Hopkins, an English teacher at Desert View High School

nizations will require some fundamental changes in the way they are run. The challenge is to extend learning to all levels of the school—not just in the classroom, but among teachers, administrators, and all staff.

We cannot expect teachers to create effective learning environments in their classrooms if they aren't being supported and engaged in learning themselves. This simple fact has eluded most educational reform efforts, which have treated innovation in the classroom as being synonymous with innovation in education.

To achieve real improvement, leaders must be prepared to assume new roles and master new skills. The task is enormous, but so are the potential payoffs: better-educated students who are able to synthesize disparate facts into a cohesive framework for solving problems; empowered educators who have the guidance and support they need to put innovative ideas into practice; and overall, an educational system that is continually improving itself.

Five Disciplines

The key to transforming schools into learning organizations lies in understanding the individual and collective capabilities needed to build such institutions.

Traditional authoritarian organizations are dominated by internal politics, game-playing, fear, and self-protection. This behavior comes from deeply-rooted habits of thinking and interacting. We have all been taught since an early age to break problems apart, to focus on symptoms rather than underlying causes.

We have learned to avoid making mistakes at all costs, which has replaced our natural curiosity and love of experimentation with a desire to provide "the right answer" and to look good. We are easily threatened in a group, fearing that we might reveal our ignorance or incompetence.

To create fundamental change in our schools, we must learn new ways of thinking and interacting that emphasize continual learning and understanding the larger systems in which we live and work rather than protecting our "turf." This is the significance of the five *learning disciplines*—systematic approaches to developing such ways of thinking and interacting.

Systems thinking is a discipline for seeing wholes, recognizing patterns and interrelationships, and learning how to structure those interrelationships in more effective, efficient ways.

"The buzzword for our activities is 'restructuring,'" says Peter Holland, the superintendent of Belmont, in Tucson, used a simulation model with her class to analyze the motivation of Shakespeare's Hamlet to avenge his father's death. In a group setting, the students examined act by act the plot of Hamlet to determine what impact each event would have on Hamlet's desire to kill Claudius. The computer then simulated the outcome of their choices.

"It was as though the use of precise numbers to talk about psychological motives and human responses had given the students power—a real system they could communicate with," says Hopkins. "It turned thin air into solid ground."

The simulation also had a dramatic effect on the learning process. "For the first time in the semester, I was not the focal point of the class," Hopkins recalls. "I did not have to filter the information from one student back to the rest of the class. They were directed and in control of the learning, instead of my having to force them to keep their attention on the task."

Other schools around the country also have used a system thinking approach to enrich specific content areas. In the Brattleboro, Vt., High School, history students developed a systems thinking framework for understanding the social forces that led up to the American Revolution. They then studied other revolutions—both historical and current—to explore how their theory "fit" the various settings.

In the Hillview Middle School in Menlo Park, Calif., the science, math, and literature teachers have been working together for the past two years on a multi-disciplinary approach to their subjects by collectively teaching nine-week units organized around a common topic.

Other schools following a systems approach are Cambridge Rindge and Latin, Cambridge, Mass.; Thomas Jefferson High School for Science and Technology, Alexandria, Va.; and the Ridgewood Public Schools, Ridgewood, N.J.

—Peter Senge and Colleen Lannon-Kim

Mass., schools and part of a group of superintendents exploring ways of bringing systems thinking to bear on issues of school administration. "We are looking at how to change the system to provide students with better learning environments at a lower cost."

Adds Scheetz: "Through a systems thinking approach, our staff members have become increasingly cognizant of the need to develop an integrated curriculum. We also now have a greater awareness of the importance and power of collaborative decision-making. Both instructional and organizational designs are focused on having the big picture, understanding systems phenomena, and considering potential effects of decision-making and related actions."

Building shared vision is about groups learning to articulate compelling images of what they truly want to create. "Unless leaders know how to assist in shaping the new vision for the individuals and the organization as a whole, these new ideas will never get into the classroom," warns Daniel.

Building shared vision is a continual process—one never "arrives" at a shared vision. It is not an endpoint but a beginning, because it is the source for all activities that flow out of that vision. As one Orange Grove teacher described it, "I see us continually growing, interacting, and changing ... not a product, but a process."

Personal mastery—the discipline of personal growth and learning—is the spiritual foundation of the learning organization. Fundamentally, personal mastery is about creating what we want in our own lives. Without individual visions there can be no shared vision, which is why a commitment to each individual's personal growth is so important in a learning organization.

As Scheetz explains, "We are allowing our shared vision to evolve through activities that help us share our personal vision with each other. In a recent workshop we had people describe their personal visions, share those visions with others, and then work on achieving a consensus about a shared vision and representing that vision in whatever way they chose. The result was a number of extremely creative and entertaining presentations, which motivated a lot of follow-up dialogue about what is really important to all of us."

Putting individual and collective visions into practice requires new skills for gaining an accurate picture of current reality. No one carries a school system, political system, or community in his or her head. What we carry in our head are assumptions—internal pictures that we continually use to interpret and make sense out of the world. These "mental models" influence how we perceive problems and opportunities, identify courses of action, and make choices.

The discipline of *working with mental models* requires the ability to distinguish what we have actually observed from our assumptions and generalizations based on those observations and the willingness to hold our assumptions up to scrutiny.

In a team setting, working with mental models dictates new ways of interacting. Most teachers are skilled at articulating their views and presenting them persuasively. While advocacy skills are important, they become counterproductive when we confront complex issues that require collaborative learning among different, equally knowledgeable people.

Much of the early work at Orange Grove involved developing team learning skills—balancing inquiry and advocacy to achieve collaborative decision-making.

"Because educators are likely to continue old habits even in a new structure, developing and continually reinforcing new habits is necessary," says Scheetz. "The most effective way to do this is by developing team learning skills within the same groups who have to work together."

Rethinking Leadership

Like artistic or spiritual disciplines, the learning disciplines only have power when people are committed to their practice. This commitment is the essence of leadership.

"I talk with people all over the country about learning organizations, and the response is always very positive," says William O'Brien, chief executive officer of the Hanover Insurance Co. in Worcester, Mass.

"If this type of organization is so widely preferred, why don't people create such organizations? I think the answer is leadership. People have no real comprehension of the type of commitment it requires to build such an organization."

Creating a learning organization will require a fundamental rethinking of our concept of leadership. Our traditional view of leaders—as special people who set the direction, make key decisions, and energize the troops—is deeply rooted in an individualistic and nonsystemic world view. According to this viewpoint, leaders are "heroes"—great men and women who rise to the fore in times of crisis. Such myths reinforce a focus on short-term events and reacting to crisis rather than on systemic forces and collective learning.

We believe a new view of leadership is emerging—one where leaders are responsible for building organizations where people are continually expanding their capabilities to shape their future. In a learning organization, leaders' roles will differ dramatically from that of the charismatic decision-maker. They will be designers, teachers, and stewards.

These roles require new skills derived from the learning disciplines: the ability to build shared vision, to bring to the surface and challenge prevailing mental models, and to foster more systemic patterns of thinking.

Leader as Designer

Imagine your school or school system is an ocean liner and you are the "leader." What is your role?

Many people would respond "the captain," others perhaps "the navigator, setting the direction," or the "engineer stoking the fire, providing energy," or "the social director, making sure everyone is involved and communicating." While these are all legitimate leadership roles, there is another which, in many ways, eclipses them in importance—the designer of the ship.

No one has a more sweeping influence on the ship than the designer. What good does it do for the captain to say, "Turn starboard 30 degrees," when the designer has built a rudder that will only turn to port, or which takes six hours to turn to starboard? It's fruitless to be the leader in an organization that is poorly designed.

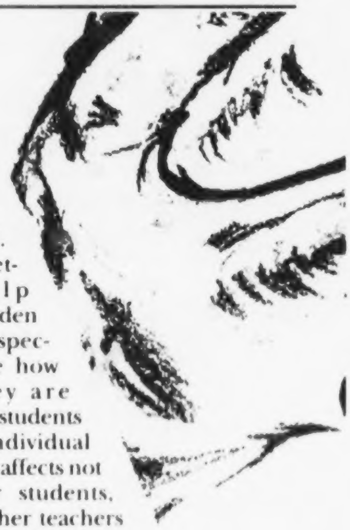
The first task of organizational design is to articulate the ideas of purpose, vision, and core values by which people will live. The second is to create the policies, strategies, and structures that will translate those guiding ideas into practice.

This requires creating effective learning processes. Leaders are not only responsible for ensuring that an organization has well-developed strategies and policies, but also for ensuring that processes exist whereby they are continually re-examined and improved.

"The concept of leader as designer is paramount in our school," says Scheetz, Orange Grove's principal. "My assistant and I find ourselves designing not only the schedule but the organizational format and learning opportunities, including what groups of people will be aligned together, how often they will meet, and for what purpose."

For example, to promote a more integrated curriculum at Orange Grove, classes are scheduled in blocks so that meeting times can be shortened, lengthened, or combined to allow students to pursue more in-depth projects, such as the "New State Park" project at Orange Grove (see story, page 10). Teachers for each grade also share the same planning period each day, so they can plan inter-disciplinary projects together.

At an organizational level, teachers are organized into teams by class or by function (e.g., eight-grade team, support team, electives team) that meet regularly to solve problems or discuss ways in which the whole system can be improved. These meetings help teachers widen their perspective to see how what they are doing with students in their individual classrooms affects not only their students, but also other teachers and other subjects.



As one Orange Grove teacher commented, "I have a new awareness that everything I do or decide to do affects others." Another observed, "I have undergone a general change in focus from what I am doing with my kids to what is happening for the kids."

Leader as Teacher

The role of leader as teacher starts with bringing to the surface people's mental models of important issues. The goal is to help everyone in the organization, oneself included, to gain more insightful views of current reality. This approach is similar to learner-directed learning, with the leader taking the role of a coach, guide, or facilitator.

Leaders as teachers also help people restructure their views of reality to see beyond the superficial conditions and events into the underlying causes of problems, and therefore to see new possibilities for shaping the future.

Specifically, leaders can influence people to view reality at three distinct levels: events, patterns of behavior, and systemic structure. All three levels of explanation are equally true, but their usefulness is quite different.

Event explanations—who did what to whom—doom their holders to continually reacting to change.

Pattern-of-behavior explanations focus on identifying long-term trends and assessing their implications. They at least suggest how, over time, we can respond or adapt to shifting conditions.

Like artistic or spiritual disciplines, the learning disciplines only have power if people are committed to their practice.

Structural explanations are the most powerful, because only they address the underlying causes of behavior and events, where real leverage lies for creating fundamental, long-lasting change.

Most leaders of current institutions focus their attention on events and patterns of behavior, and, under their influence, their organizations do likewise. Leaders of learning organizations must pay attention to all three levels, but focus especially on systemic structure. By example, they will teach people throughout the organization to do likewise.

Leader as Steward

Stewardship is perhaps the most subtle role of leadership. Unlike the roles of designer and teacher, the role of steward is almost solely a matter of attitude, but it is critical to learning organizations. Leaders' sense of stewardship operates on two levels: stewardship for the people they lead and stewardship for the larger purpose or mission that underlines the enterprise.

Stewardship for people arises from a keen appreciation of the impact one's leadership can have on others. People can suffer economically, emotionally, and spiritually under inept leadership. If anything, people in a learning organization are more vulnerable because of their commitment and sense of shared ownership. Appreciating this obligation naturally instills a sense of responsibility in leaders.

The second type of stewardship arises from a leader's sense of personal purpose and commitment to the organization's larger mission. People's natural impulse to learn is unleashed when they are engaged in an endeavor they consider worthy of their fullest commitment. Those leaders who understand the distinction between vision as a set of inert words and vision as a living force in the hearts and minds of individuals recognize the importance of a larger purpose.

Leaders of schools pursuing the disciplines of the learning organization are working to change fundamentally the way schools operate, and in so doing, to teach us all to be lifelong learners.

Creative Tension

The overarching principle for leadership in a learning organization is harnessing the power of creative tension. Creative tension comes from seeing clearly where we want to be—our "vision"—and recognizing where we are now—our "current reality." The gap between the two generates a natural tension.

Creative tension can be resolved in two ways: by raising our current reality toward the vision, or by lowering the vision toward current reality. Individuals, groups, and organizations who learn how to work with creative tension learn how to use the energy it generates to move reality more reliably toward their visions.

Without vision there is no creative tension. Creative tension simply cannot be generated from current reality alone. Many leaders believe if only people understood current reality they would surely feel the motivation to change. They are then disappointed to discover people resist the personal and organizational changes that must be made to alter reality.

What they never grasp is that the natural energy for changing reality comes from holding a picture of what *might be* that is more important to people than what *is*.

But creative tension cannot be generated from vision alone. It demands an accurate picture of current reality. Self-delusion, "white-washing," or otherwise protecting ourselves or others from seeing reality accurately, diminishes creative tension just as much as compromising our vision does.

As Robert Fritz, founder of DMA, a personal self-help organization in Williamsville, Vt., and author of *The Path of Least Resistance*, has observed, vision without an understanding of current reality more likely will foster cynicism than creativity—a scenario that is all too real for teachers frustrated with countless efforts to improve classroom teaching without transforming the overall school environment.

The principle of creative tension teaches us that an accurate picture of current reality is just as important as a compelling picture of a desired future.

Leading through creative tension is different from problem-solving. In problem-solving, the energy for change comes from attempting to get away from an aspect of current reality that is undesirable. With creative tension, the energy for change comes from juxtaposing the vision with current reality.

Many people and organizations find themselves motivated to change only when their problems are bad enough to cause them to change. This works for a while, but the change process runs out of steam as soon as the problems driving the change become less pressing.

With problem-solving, the motivation for change is extrinsic; with creative tension, the motivation is intrinsic.

"People are born with intrinsic motivation, self-esteem, dignity, curiosity to learn, and joy in learning," writes W. Edwards Deming.

The power of the learning organization resides in its ability to engage that basic human drive to learn. For leaders of learning organizations, the challenge is to turn that collective energy into a shared vision that is compelling for all members of the organization. Once that synergy is achieved, continually improving the system will become a natural extension of everyday activity.

Peter Senge is director of the Organizational Learning Center at Massachusetts Institute of Technology and author of The Fifth Discipline: The Art and Practice of the Learning Organization. *Colleen Lannon-Kim is editor of The Systems Thinker, a newsletter that applies systems thinking to organizational issues.*

The Quality Revolution In Education

John Jay Bonstingl

As TQM finds its way into schools, more and more educators are discovering the natural fit that quality principles and practices have with their own aspirations for the continuous improvement of education.

Suddenly, it seems, the name of W. Edwards Deming is everywhere. From relative obscurity in this country a dozen years ago, Deming's name has become synonymous with the movement he calls Quality Management, better known as TQM or Total Quality Management. This movement is spawning a new American revolution, as *quality* becomes our watchword in every aspect of life. TQM principles and practices are revitalizing businesses, government agencies, hospitals, social organizations, home life—and our own world of education.

The Birth of TQM

The story of TQM, as many of us know, is entwined with the legend of Japan's phoenix-like resurrection from the ashes of World War II. Japanese industrial leaders insist this could not have happened without the help of Deming and his fellow American statistical experts, Joseph M. Juran and Armand Feigenbaum.[1] Deming and Juran lectured throughout Japan in the years following the war, teaching manufacturers how to reverse their well-established reputation for shoddy, cheap goods by designing quality into their work systems. An increasingly sophisticated global marketplace demanded higher quality goods, they proclaimed, and would no longer tolerate Japanese "junk." At the time, war-ravaged Japan was desperate for foreign trade, the proceeds from which would enable the country to feed its people.

At a decisive meeting in Tokyo in 1950, Deming pledged to the nation's top industrial leaders that, if they would embrace the philosophy of Quality Management, they would "capture markets the world over within five years." Everyone was incredulous.[2]

Deming's message was familiar to many Japanese industrialists of that era. They had heard lectures on quality control a few years earlier by American statisticians on loan to General MacArthur's staff from Bell Laboratories. It was at Bell Labs where Deming's teachings had their genesis in the work of his mentor, Walter Shewhart. Shewhart's research focused on improving the reliability of telephones by building quality assurance into the entire system of design and manufacture, rather than relying on end-of-the-line inspection to remove defective phones before they entered the marketplace.

Deming's quality crusade in Japan—sponsored by the Allied occupation force and supported by Ichiro Ishikawa, the leading industrialist of Japan's powerful *Keidanren* (Federa-

Continuous improvement is an important facet of students' and teachers' day-to-day work in schools that emphasize Total Quality ideas and practices (left and on p.6).

Courtesy of Enterprise School District, Redding, Calif.

tion of Economic Organizations)—was virtually unknown in the United States until the 1970s. It was at that time that American manufacturers' bottom lines began to bleed red ink, as customers the world over registered their preference for Japanese goods over American products. The reason for this preference was, in most cases, a simple one: Japanese items had consistently better quality at competitive prices.

It was not until three decades after Deming's first lecture tour of Japan that Americans finally "discovered" our then-octogenarian native son. On June 24, 1980, in what must now be one of the most famous television documentaries of all time, "If Japan Can, Why Can't We?" focused on the growing disparity between U.S. and Japanese industrial competence. This NBC "white paper" introduced Deming as the man whose message had transformed Japan. In the film, Deming advised Americans to resist the temptation to simply copy what the Japanese had done. Quality cannot be applied externally in a Band-Aid fashion, he maintained; it has to be developed. Deming urged Americans to learn how to "work smarter, not harder" by adopting a new quality-focused way of approaching the processes of production, the systems in which those processes take place, and the interaction of people within those processes and systems.[3]

TQM and Education

As leaders in education begin to adopt TQM as their operational philosophy, they are discovering the good news—and the bad news—about TQM. The bad news first: Total Quality Management is neither a Holy Grail nor a magic silver bullet. TQM cannot be successful if it is viewed as the flavor of the month or as "our project for *this* school year."

The good news is this: The real rewards begin to emerge when TQM ideas and practices become so embedded in the culture of the organization—the day-to-day work of its people and systems—that it is simply "the way we do things around here." Its greatest benefits come about as a natural part of the evolutionary process of implementing a program of continuous improvement, over time, in a consistent manner.

The benefits of TQM are tangible: People feel better about themselves and their efforts on the job, and they take greater pride in their work. Relationships among people in the organization are more honest and open. Administrators often feel less isolated, misunderstood, and burdened. Productivity goes up, as work processes are improved continuously. With organizational change come opportunities for personal and professional growth, along with the pride and joy that come with getting better and better every day, and helping others to do the same.

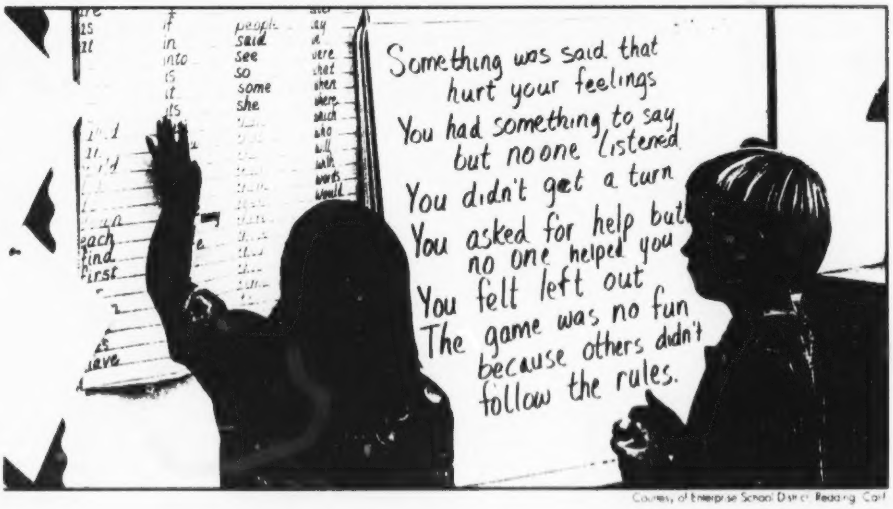
Although the philosophy of Total Quality Management springs from the world of business, it transcends the narrow commercial imperatives of increased productivity and profitability. TQM, at its heart, is dedicated to bringing out the best qualities in ourselves, in others, and in the work we do together. It is, in many ways, a natural fit with the hopes and aspirations of educational leaders in their work to improve schools and communities.

The Four Pillars of Total Quality

Total Quality Management, whether viewed through Deming's 14 Points, Juran's Trilogy®, or Kaoru Ishikawa's Thought Revolution,[4] can best be understood as an integral set of fundamental tenets. I call them the Four Pillars of Total Quality Management:

1. *The organization must focus, first and foremost, on its suppliers and customers.* In a TQM organization, everyone is both a customer and a supplier. It is essential to identify one's roles in the two capacities to better understand the systemic nature of the work in which all are involved. In education, we are particularly prone to personal and departmental isolation. "When I close the classroom door, those kids are *mine*!" is a notion too narrow to survive in a world in which teamwork and collaboration result in high-quality benefits for the greatest number of people.

In the classroom, teacher-student teams are the equivalent of industry's front-line workers. The product of their successful work together is the development of the student's capabilities, interests, and character. In one sense, the student is the teacher's customer, as the recipient of educational services provided for the student's growth and improvement. Viewed in this way, the teacher and the school are suppliers of effective learning tools, environments, and systems to the student, who is the school's *primary customer*. The school is responsible for providing for the long-term educational welfare of students by teaching them how to learn and communicate in high-quality ways, how to assess quality in their own work and in that of others, and how to invest in their own lifelong and life-*wide* learning processes by maximizing opportunities for growth in every aspect of daily life.[5]


Something was said that hurt your feelings
You had something to say but no one listened
You didn't get a turn
You asked for help but no one helped you
You felt left out
The game was no fun because others didn't follow the rules.

Courtesy of Enterprise School District, Redding, Calif.

In another sense, the student is also a worker, whose product is essentially his or her own continuous improvement and personal growth. The school's stakeholders and *secondary* customers—including parents and family, businesses, members of the community, and other taxpayers—have a legitimate right to expect progress in students' competencies, characters, and capabilities for compassionate and responsible citizenship—not for the direct and immediate gain of the stakeholders but, rather, for the long-term benefit of the next generation and of generations to come. Total Quality in education, as in life, is essentially generative.

Within a Total Quality school setting, administrators work collaboratively with their customers: teachers. Gone are the vestiges of "Scientific Management" popularized early in this century by Frederick Winslow Taylor, whose watchwords were compliance, control, and command. The foundations for this system were fear, intimidation, and an adversarial approach to problem solving. Today it is in our best interest to encourage everyone's potential by dedicating ourselves to the continual improvement of our own abilities and those of the people with whom we work and live. Total Quality is, essentially, a win-win philosophy that works to everyone's ultimate advantage.

2. *Everyone in the organization must be dedicated to continuous improvement, personally and collectively.* The Japanese call this ethos *kaizen*, a societywide covenant of mutual help in the process of getting better and better, day by day.

In Japanese companies, employees meet regularly in "quality circles" to discuss ways to do their work better, often by modifying existing processes. Some American companies and schools are also setting aside valuable time for *kaizen* discussions that foster the collaborative development of a true learning environment. As Peter Senge has suggested, those organizations most capable of surviving and prospering are "learning organizations"—where people, processes, and systems are dedicated to continuous learning and improvement.[6]

If schools are to be true learning organizations, they must be afforded the resources, especially time and money, needed for training, quality circles, research, and communication with the school's stakeholders: parents, students, businesses, colleges, community residents, taxpayers, and others. Schools must also rethink practices that focus narrowly on students' limitations rather than their range of innate strengths. Howard Gardner has pointed out the self-defeating nature of a narrow academic focus, encouraging educators to acknowledge the existence of multiple intelligences and potentials within each student and to help students develop their many intelligences more fully day by day.[7]

Deming suggests that we "abolish grades (A, B, C, D) in school, from toddlers up through the university. When graded, pupils put emphasis on the grade, not on learning."[8] True dedication to the continuous improvement of all students will require educators to reexamine current practices of grading and assessment. The

At Glenwood, Maryland, Middle School, Quality Circle "S-Teams" take students into the community for public service and town improvement efforts.

John Jay Bonsting

bell-shaped curve, still considered the ideal outcome of aggregate assessment in many schools, is ultimately destructive of learning environments and the spirit of mutual improvement. The bell curve (and some other grading systems) has the effect, perhaps unintended, of setting up unnecessary and counterproductive scarcities of student success in competitive, win-lose environments.[9] It doesn't take long for children to find out where they fit in the five pigeonholes of the bell curve, and the students' narrow academic self-image becomes, all too often, intertwined in self-fulfilling prophecies played out throughout life.

Educators must examine the wide range of effects that externally imposed assessment has on students' capacities to grow, to learn, and to assess the quality of their own work as well as the work of others. Many schools are already implementing new assessment strategies as part of their Total Quality plan, including process portfolios, exhibitions, and even celebrations of students' progress throughout the year.

3. *The organization must be viewed as a system, and the work people do within the system must be seen as ongoing processes.* Deming and others suggest that more than 85 percent of all the things that go wrong in any organization are directly attributable to how the organization's system and processes are set up. Individual teachers and students, then, are less to blame for failure than is the system—the seemingly immutable pattern of expectations, activities, perceptions, resource allocations, power structures, values, and the traditional school culture in general. Therefore, it is the system that deserves our greatest attention.

Schools that have adopted TQM principles and practices invest substantial resources to discover new and better ways to help realize everyone's potential. Every system is made up of processes, and the improvements made in the quality of those processes in large part determine the quality of the resulting products. In the new paradigm of education, continual improvement of learning processes will replace the outdated "teach and test" mode of instruction. The quality of teaching/learning processes is mirrored in learning outcomes. Therefore, we must acknowledge that to focus our attention on *results* is premature or even counterproductive, without a prior and overarching focus on the *processes* that bring forth desired results.

4. *The success of Total Quality Management is the responsibility of top management.* Without concerted, visible, and constant dedication to making TQM principles and practices part of the deep culture of the organization, efforts are doomed to fail. Leaders must, according to the first of Deming's 14 Points, "create constancy of purpose for improvement of product and service." In business, this means that company leaders must establish the context in which the company stays in business and provides jobs through research, innovation, and the continual improvement of products and services. Increased profits are less important than this focus.

In education, school leaders must focus on establishing the context in which students can best achieve their potential through the continuous improvement of teachers' and students' work together. Educational leaders who create Total Quality school environments know that improving test scores and assessment

The presence of their mascot, the Koala, is a constant reminder that every kid is a Koalaty Kid.

Courtesy of Perry Elementary School, Erie, Pa.

symbols is less important than the progress inherent in the learning processes of students, teachers, administrators, and all of the school's stakeholders.[10]

TQM in Action

Educational organizations around the country—in fact, around the world—are recreating their work processes, systems of human interaction, mission statements, and their long-term vision and strategies, all with the tools and philosophy of Total Quality Management.

- Hungary's first private, teacher-operated secondary school, the Independent High School of Economics in Budapest, is applying TQM and a process orientation to its pioneering work with faculty, students, and the community. The school's efforts to create a new educational context for democratic citizenship has provided a breath of fresh air in a brand-new republic struggling to understand and catch up with the post-industrial world. The school's process of development, in which I have been privileged to participate, focuses on the continuous improvement of all the school community's citizens. Their motto, "We are for the tadpoles!" reflects the school's profound understanding of the inherent value of being the best possible tadpole, before becoming the best possible frog.
- School leaders in the well-known Total Quality experiment at small public, residential Mt. Edgecumbe High School in Sitka, Alaska, have applied TQM principles and practices not only to the work of teachers and students in the classroom, but also to the establishment of a successful student-operated salmon export business with Japan. In nearby Haines, Alaska, teachers and school board members have also convinced their superintendent to support TQM throughout the district.
- In Erie, Pennsylvania, leaders of the town and the schools have joined forces to create a communitywide Quality Council to generate a renaissance in all aspects of citizens' lives. Long the butt of jokes about its stodgy image, Erie recently established the World Center for Community Excellence as a helping hand to other communities who would like to implement quality improvement programs.
- In Glenwood, Maryland, the middle school has instituted New England-style town meetings for the student body. Before attending the meeting, every student works in one or more quality circle "S-Teams" with fellow students. S-Team (or Support Team) is a play on the word *esteem*. In the teams students discuss how their work, individually and collectively, can be improved. They pledge specific efforts to help bring about the planned results in their "house" or grade, or even the entire school. S-Team projects take the students into the community as well, for public service and town improvement efforts at nursing homes and hospitals, at home to improve family life, and at school for campus beautification.[11]

In neighboring Columbia, Maryland, Wilde Lake High School has practiced a philosophy of continuous student progress since its inception more than 20 years ago. There is no failure. Students perfect their school work until they deserve at least a C grade, a practice that gives the school an exemplary reputation among college admissions officers.

- At Central Park East School in East Harlem, grades are unknown. Student projects, demonstrations of learning progress, and descriptive evaluations of students' work, have—with strong administrative leadership and vision—contributed to the creation of a Total Quality culture in a challenging environment.
- Redwood Middle School in Napa, California, is solving its problems of an unwieldy (and growing) population and concomitant tendencies toward impersonalization by creating cohort groups of teachers and students. Teachers are given time every day to meet in their groups, to discuss the progress of students, to monitor their individual and collective learning processes, and to plan learning opportunities for students based on analysis of diagnostic data. Learning at Redwood is a team project.
- In Virginia's Rappahannock County schools, TQM training has paid off in virtually every aspect of the district's functioning. Report cards have been designed by a parent-teacher-student team. Serious disciplinary problems on bus runs have been solved as a result of the efforts of

a Quality Improvement Committee, composed of parents, bus drivers, the transportation supervisor, administrators, and students. In addition, results of districtwide customer satisfaction surveys have shown remarkable gains in the three years since the district began implementing Total Quality principles and practices.

- Quality-conscious companies such as Corning Incorporated are actively supporting Total Quality transformation in the schools in their communities. The Koalaty Kid Program, brainchild of the spirited staff of Carder Elementary School in Corning, New York, is now vigorously supported by Corning Incorporated, the community's chief employer, and by the American Society for Quality Control. The presence of their mascot, the Koala, throughout the school and in assemblies celebrating the continuous improvement of students, is a constant reminder that every kid is a Koalaty Kid. The program, says David Luther of Corning Incorporated, "is based on the assumptions that children want to learn in acceptable ways and will make a real effort to do so if the environment they're in promotes their self-esteem and stimulates their desire to achieve attainable goals." The program works, adds Luther, because it "is a *systematic process* for achieving the desired outcome and for *continuous improvement*."[12]

- The Arlington Independent School District in Texas has united the community to recreate their school system as "an open organization that actively listens to customers and employees and then acts positively upon what it learns. Our communication process will be marked by courtesy, responsiveness, and follow-through." The key to success will be the implementation of a districtwide vision as a "total quality school district permeated with a commitment to continuous improvement throughout the organization."[13]

Creating Schools of Quality

If all this sounds good and you would like to promote Total Quality in your schools, it's important to know in advance some of the potential pitfalls and obstacles.

- Total Quality is a long-term commitment to a different way of perceiving, thinking, and acting. "Quality First" will become your way of life at work, at home, and in the community. Without such a transformation, TQM will be just another project to do while you wait for the next hot item of salvation to come down the pike.

- Workers, acting alone, cannot create a Total Quality organization. The top leadership must acquire the resources, inspire the troops (especially when the going gets tough), and, most important, demonstrate openly and decisively an ongoing personal commitment to Total Quality Management and its application to the continuing improvement of schools and their people.

- Training is essential if the meaning of Total Quality is to transcend the level of buzzwords. Businesses that have experienced success implementing TQM can provide guidance and training. However, their focus and mindsets are often attuned to a world holding different values and practicing different norms than those of educators. Therefore, schools must invest resources in training by *educators* who can build bridges of linguistic and conceptual understanding between business and education.

- Know, before you start, that the road to Total Quality in any "learning organization" is not a smooth path. No magic plan, externally applied, will assure an efficient or painless process. Outside experts can show you models, teach you useful tools, and offer encouragement, but they cannot and should not do the work of transformation for you. A "yearning for learning" comes, ultimately, from within the individual and within the organization.

- Take a pledge, personally and with your colleagues, *before* you begin your Total Quality transformation, to help and support one another throughout the ongoing process of improvement, *no matter what*! Make the principle of *kaizen* one that works in your own life, and help the people with whom you work to do the same. Above all, *don't give up*! When does it all end? As Deming says: "Forever!"

A decade after the publication of *A Nation At Risk*, educators today have the opportunity to combine efforts with each other, with business and government leaders, and with all stakeholders in our common future. We must transform our Nation at Risk into a *Nation of Quality*, beginning with the creation of Schools of Quality. ■

[1] Although Feigenbaum never lectured in Japan, his writings were highly influential in the Japanese transformation.

[2] M. Walton, (1986), *The Deming Management Method*, (New York: Perigee), p. 14.

[3] Walton, p. 19.

[4] Kaoru Ishikawa, son of Ichiro Ishikawa, was one of Japan's most highly respected quality experts.

[5] Professor Jost Reischmann of the University of Tübingen, Germany, shared his concept of life-wide learning with me.

[6] P. Senge, (1990), *The Fifth Discipline*, (New York: Doubleday).

[7] H. Gardner, (1983), *Frames of Mind*, (New York: Basic Books).

[8] J. J. Bonstingl, (March 1992), "The Total Quality Classroom," *Educational Leadership* 49: 70.

[9] W. E. Deming, (January 1992), seminar readings.

[10] J. J. Bonstingl, (1992), "Deming's Fourteen Points Applied to Companies and Schools," privately published. Also in (April 1992), *Resource Guide for Total Quality Management in Texas Schools*, (Austin, Tex.: Texas Association of School Administrators), pp. 7-10.

[11] J. J. Bonstingl, (1991), *Introduction to the Social Sciences*, 3rd ed., (Englewood Cliffs, N.J.: Prentice Hall). Chapter 10, "The Future," details the process of S-Teams.

[12] (1991), *Koalaty Kid Manual*, (Milwaukee, Wis.: American Society for Quality Control), p. ii.

[13] (n.d.), "20/20 Vision: Total Quality School District," Arlington, Texas, Independent School District, brochure.

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On Restructuring Roles and Relationships: A Conversation with Phil Schlechty

Ron Brandt

A new role for the teacher is as inventor of engaging work. The school board's role is to educate the community about the conditions of schools. And the superintendent's role should be not so much to make decisions as to cause decisions to be made.

[illegible]

"Schools are organized on the principles of Monopoly while our kids live in a Nintendo world," Phil Schlechty told educators at the ASCD Annual Conference last year. The president of the Center for Leadership in School Reform, Schlechty believes strongly that the rules for schools must change. In this conversation with Educational Leadership, *he spells out how teachers, principals, superintendents, and school board members must become more focused on developing the capacity of students.*

Phil, what would you say is implied in the term "systemic change"?

It means changing the system of norms: the regular and patterned ways of doing things—how power is distributed, how decisions are made, what our business is.

If we say our business is selecting and sorting students, which is what our present schools are designed to do, we structure the system one way. But if we say our business is developing the capacities of all students, we design the system another way. One reason many innovative curriculum materials of the 1960s didn't work very well was the way schools were structured.

Are you saying there's been a shift in what people see as the basic purpose of schools?

Yes, we're struggling with that. We're being asked to serve a purpose we don't fully understand, and because we don't understand it, we're trying to respond to it in terms of the old purpose.

I call it the Post Office effect. The postal service was designed to be a reliable deliverer of the mail at low cost. The promise was, "We'll get your mail there some time, and it won't cost much." After World War II, businesses began to ask for fast, time-certain mail delivery. They wanted to know exactly what time a letter was going to get there.

I think that's where we are. We're being expected to teach every kid how to do algebra and we're still trying to make sure that most kids know how to add, subtract, multiply, and divide.

You spoke of the way schools are "structured." You seem to be saying that systemic change and restructuring are the same thing.

They're synonyms. It doesn't make sense for people to say, "Restructuring is failing; let's try systemic reform." Restructuring is changing the system of rules, roles, and relationships that govern the way time, people, space, knowledge, and technology are used and deployed. That's what systemic reform is, too.

I'm sure that's right in theory. In practice, though, we've seen efforts at the state level to encourage restructuring at the school level, with the idea that "We don't have to change; they have to change." For example, when a state would mandate teacher and parent participation in decision making, it was considered restructuring. But then,

It's not what the teacher does that's important; it's what the teacher gets the child to do that's important.

observers began saying, "You know, without broader change, site-based decision making isn't making a difference; we have to change the whole system. The state has to start by changing its own policies, its regulations, its incentives." I think that is what's implied in the new language of systemic change.

I agree that's how some people are using the words. It's like Humpty Dumpty: "When *I* use a word, it means just what I choose it to mean." But such terms have special, technical meanings that can be very powerful.

Take restructuring. A great deal of restructuring has occurred in the last five years, but it hasn't affected anything, because we restructured the wrong things. For example, there's no question that local boards of education have less authority than they had 10 years ago; state education agencies have more authority. And we've still got the same dumb decisions being made. We've got to focus our attention on the things that need to be restructured.

What things?

Things that make a difference in what happens to kids in classrooms.

Such as?

As I said before, time, people, space, knowledge, technology. Take time, for example. You've got to restructure the rules, the roles, and the relationships that govern the way time is used. The students are our customers; what we do is design work activities that engage our customers. And we have to use time flexibly in order to do that. You can't do it by saying, "Everyone must do this within the next 50 minutes."

What are some other things that need to be restructured at the level of teaching and learning?

People, and how they're organized. For one thing, we should totally reorganize schools in the sense of grades. The nongraded primary is not enough: we should have nongraded schools. Another thing is the size of the basic unit the student belongs to. I don't care how big the *school* is, I want to know how small the *unit* is. There are a number of ways you can take a 1,500-student high school and turn it into a place where 1,500 people of different ages are grouped into small, cross-age units.

We need to see every person who comes into the school as a part of the instructional environment, and that includes the kids themselves. And we need to think of students as part of the instructional staff.

Restructuring is changing the system of rules, roles, and relationships that govern the way time, people, space, knowledge, and technology are used.

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Most of the things you're talking about aren't totally new, are they? Most have been done somewhere, haven't they?
Yes. But I don't know of any school where all of it is being done in a systemic way. To do that—to put it all together—schools need to be a part of a total system committed to these things. It takes a supportive system—a school district—to do it.

Is that why you recently entered into an agreement with a few school districts to work with them over a long period of time?
Yes, I formed the Center for Leadership in School Reform because I believe that school districts need to have access to a single-purpose outside source of consultation, help, and advice. At this point, we have a relationship with Tupelo, Mississippi; Lake Washington, Washington; Cedar Rapids, Iowa; Hammond, Indiana; and a couple of school districts in Connecticut. Basically, what they are buying into is the notion that you have to develop district-level capacity to support and sustain school-level change.

In that connection, let me ask about a topic that's attracting a lot of attention these days—Total Quality Management. Is that something different from what you've been talking about?
It is as some people talk about it. TQM will be nothing more than MBO (Management by Objectives) warmed over unless we change the fundamental paradigm we use to think about schools. If we continue to think about students as products, and test scores as significant measures—as the qualities that we are trying to control—we're just going to beat ourselves to death again. If, however, we think about the student as customer for work, and we think about the work itself as the product, and we talk about variance in the quality of the work provided to kids, that's different.

Then we understand the fundamental logic of W. Edwards Deming's Total Quality Management, which is very simple, really. Basically it involves just three things: understand processes, get control of processes, and—where possible—improve those processes. Deming is saying that you can't control something you don't understand. A lot of the charts and so forth used in TQM are just ways to get some understanding of what might be going on. Then, how much of those things can you control? Sometimes we try to over-control things. But it doesn't work because some variance is normal; it's built into the system.

What's an example of a process you can control?
A very important one is decision making. Actually, we know some of the variables in effective decision making. One, for example, is whether the group that makes the decision knows what results the group members want the decision to produce—before they make the decision. If you have clarity of results, you are going to get a better decision than if you don't have clarity of results. And you can measure the degree to which a decision was made on the basis of a clearly specified result or outcome. Related to that is asking those in the group to articulate how they'd know that the result had been produced—what indicators they would accept as evidence.

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That's just an example of the kind of thing you can do. If you begin to train teams to think that way about their own decision making processes—to understand those processes and get control of them—they begin to understand the power of statistical process control.

You mentioned that people are confused about the role of students. I've heard about "student as worker," but I'm afraid I don't understand "customer for work."

I am very much with Ted Sizer; I have no trouble with seeing students as workers. But from the school's point of view, the student is our customer for work. Big people populate the school all the time; little people pass through it. The big people have to be customer-centered. Students must be the focus of all our activities. Our job is to design activities that meet our customers' needs.

I think of work as what the students do, but you're thinking of it as what they are assigned to do.

What they are encouraged to do, inspired to do.

Can you make that a little more specific?

Well, for example, encourage students to use mathematics to solve real problems, not just do numbers. You see a similar emphasis on connection with the real world in many writing projects and in the best science curriculums.

Let's turn, then, to the teacher's role.

The teacher has to be viewed as a leader and an inventor. The job of the teacher, often working with other teachers, is to invent work that kids will do, and to lead them to do it. It's not what the teacher does that's important; it's what the teacher gets the child to do that's important. That's why we need to see the teacher as a leader and inventor.

And if teachers are leaders, then the principal is a leader of leaders. I don't consider the principal as instructional leader; instead, I see the principal as leader of instructors. Now, that's more than just semantics, because instructional leadership and curriculum leadership are embedded in the job of teaching. But you still have to have leaders of leaders—that's where the principal comes in.

I don't consider the principal as instructional leader; instead, I see the principal as leader of instructors.

And you must have a leadership system. I think of the superintendent as the Chief Executive Officer of what is typically the largest single knowledge-work enterprise in the community. The Jefferson County school district in Kentucky employs a higher proportion of college-educated employees than any other single employer in the community. And all those people work with and on *knowledge*. Go to a small rural community and you'll find that half the college-educated people in the town are employed with the schools.

So the superintendent should be viewed as the CEO. Now, that is a very different role for a superintendent: to be called on not to solve all the problems, but to decide which problems are worth solving, and then create conditions in which those problems get solved; to be a decision *causer* rather than a decision maker.

Another role that people are concerned about is that of board member.

They should be concerned. Board member is one of the most critical roles we have. Unfortunately, the way things are now, board members cannot afford to be thoughtful.

I'm not blaming board members, though. I watch what happens when boards of education and superintendents are communicating with one another—when the superintendent is really listening to the board and the board is really listening to the superintendent. The consequence is that every Monday night when they have votes of 7-0 or 5-0, the newspaper says, "They're a rubber stamp board." They're supposed to be rude and nasty. And if they're not that way, the community will get someone to run who will be.

But that's not how it should be. The role of the board member is to understand the issues deeply and to educate the community about the conditions of the schools. Board members must learn to carry on a dialogue with the community. Too many board members see their job as simply representing the constituency that elected them. That's only half the job; the other half is to educate that constituency—because board members ought to be the wisest people in the community. The job of the board— paraphrasing John Dewey—is to ensure that what the wisest parents in the community want for their children is what all children receive. ■

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Not an oxymoron... not a fad

Quality management in schools

Susan Leddick — Profound Knowledge Resources, Inc.

Quality management in education runs the risk of being the next fad if its principles are not understood and used as the basis for practice. This article describes six basic quality principles and how schools are using them to improve their school systems.

We're talking about quality management in school systems because it holds promise for helping schools transform. Just as American business has learned in the last quarter of the 20th Century of its vulnerability in a changing world economy, American education is also learning that it, too, must change to meet new demands.

Why education and why now? Expectations of the organizations who will employ our students, the parents and taxpayers who support our schools, and the citizens who depend on today's youth to lead the nation tomorrow have never been higher. And the gap between those expectations and perceived school performance may never have been lower. Books, magazines, television, special congressional reports continually remind us that schools are not performing as well as we need them to, if our nation is to retain its position as a world economic power. It is not enough to educate our best and brightest. We must find ways to help every child learn. It is the majority who pose the challenges.

But isn't education different? We are talking about quality management because schools are systems whose intended outcome is learning. Teachers and administrators and bus drivers and kids work in those systems. All those people can achieve more and achieve it better if they learn to manage their own work according to certain simple but profound principles.

What of the many existing reform proposals? We could catalog approaches to improving education that range from restructuring to entrenchment, but they all lack comprehensiveness:

- They have no language for defining the context in which the school exists and, thus, its purpose.
- They have no language for describing the school as a whole organism.
- They lack a theory of knowledge — a way to know if changes really lead to improvement.
- They lack a method to make improvements to any and all parts of the school or district.
- And they lack a means for engaging all the people in the school and the district in continually improving it.

Quality management provides the comprehensive view school reform has been lacking.

Foundation principles of quality management — Quality management can best be described as a system of thinking and acting. From a set of key terms come key principles. The principles form a unified whole or theory. Although we can examine each principle separately, together they form a unit. Understanding quality management means understanding how the principles work together. Together they form a foundation on which transformation can be built.

The foundation principles of quality management

1. Customers have dynamic needs and expectations.
2. Customers are satisfied by purposeful activities or systems.
3. All systems exhibit variability.
4. Knowledge comes from rotating the Plan–Do–Study–Act cycle.
5. Continuous improvement of systems occurs through planned change.
6. People drive change.

The customer principle in schools

A clear view of the customer is essential to establishing the purpose of the school. Without purpose we cannot understand the school as a single entity, nor all the elementary schools and secondary schools in totality, nor the support services and the schools as one organization. Without purpose we cannot explain why one course of action is appropriate and another inappropriate.

Which customer do you mean? Defining customers has been a very difficult task for educators. Is the customer the employer who will hire our graduates? Is it the next grade or next school to which our students pass? Is the customer the taxpayer? How about parents? Or how about kids? An argument can be made for any one of them, and for many more. No one answer is right and the other wrong, but any answer chosen has unique implications for defining quality of education.

Schools grappling with the customer principle are raising these issues:

1. Who's the customer?
2. What's the customer need we serve?
3. What's our aim?

These issues, seemingly simple, are difficult because so many customers and competing needs exist. Looking at an example may help.

The customers and purpose at Mt. Edgecumbe... The purpose of Mt. Edgecumbe High School, Alaska's only public boarding school, is to provide for parents the assurance that their children will live and learn in a balanced social and academic environment, work to freely cooperate with others, to cause positive improvements, adjust and participate in a changing global society, and gain enthusiasm for lifelong learning.

Mt. Edgecumbe strives to provide quality education for youth in order to add value to society through a program, which in addition to a basic curriculum, focuses on:

- Pacific Basin studies
- Entrepreneurship
- Computer technology
- Total quality management techniques.

Tools for a multi–customer supplier... Like Mt. Edgecumbe, schools applying the customer principle are planning with an eye on multiple customers:

- They are writing clear mission statements that help clarify decision making for all members of the school community.
- They are applying site–based decision–making to assure that customers, both internal and external, have a voice in how the school is managed.
- They are working on community consensus to align the political forces that rise when multiple interest groups are affected.

The system principle in schools

To understand a very simple mechanical system, watch a child assemble a Lego truck. She may first grab the wheels — things that roll. She will snap together the long, flat pieces to create the frame — something that provides a base. She will assemble the cab and attach the windshield — to house the driver and provide visibility. When she's finished, she has a system called a truck. It combines all the related entities (wheels, frame, cab, windshield, and so on) to reach a common purpose of helping imaginary people carry objects from place to place. No single part of the truck can accomplish what they can accomplish together, yet each is functional to a limited extent on its own. When we fragment any system to study its parts, we lose connections and lose sight of the whole system. It's Humpty Dumpty all over again! Hence, our definition of a system is: a system is a set of related entities that work together to accomplish a common purpose.

Schools working on the system principle are raising these issues:

1. What is *us?*
2. What is *our* common aim?
3. What is *accountability?*

What is us? It is often hard to tell where the school system's boundaries are. As social services are increasingly delivered in cooperation with and through the schools, for instance, it is hard to tell what's education and what's social service.

What is our common aim? A common aim depends in part on a consensus among customers. Yet without a common aim we are hopelessly locked into competing structures: schools competing against other district schools for scarce funds or special programs; children competing against each other for grades and attention.

> ***"There is no true value of anything. There is only a number that comes from the application of a certain method."***
> *W. Edwards Deming*

What is accountability? The popular concept of accountability (which, in the words of quality consultant Peter Scholtes, may be a fifty–cent word for blame), is threatened when we understand that the interrelated nature of a system makes individual performance impossible to quantify.

Some beginnings in using the systems view... Schools understanding the system principle are working hard to picture the school and its community as a system. For example, Jackson Community College in Jackson, Michigan, has created a system map that identifies major subsystems and the inter–relationships that exist among them. They are using the map to communicate among the college staff and to guide improvements. Other schools are breaking down barriers between functions. Teachers at Catalina Foothills in Arizona are working together to design and deliver interdisciplinary courses that emphasize linkages or connections among subject areas. All schools who are beginning to understand the system principle are finding frequent and creative ways to communicate the aim of the system to people who work in it and people who receive its products and services.

The variability principle in schools

Ask any system manager any question about how the system performs, and you'll get the same answer.

Q: How many kids are enrolled in your school?
A: It varies from week to week, month to month, year to year.
Q: What's your school district dropout rate?
A: It varies from school to school and from year to year. It also depends on how you count.

Taking a pattern view over a point view — Despite how obvious the answer — "it varies" — in education we seem conditioned to behave as if there is a correct, accurate, and one right number to answer any such question. Dr. Deming often reminds his audiences at seminars that "There is no true value of anything. There is only a number that comes from the application of a certain method." If the method is applied repeatedly over time, the number will certainly vary.

The point view... Even when we have looked at distributions in education, we have used the normal curve (bell curve) to sort and select the best from the worst so we could reward one group and punish the other. This is a *point* mentality: people react to individual points or pieces of data.

The pattern view... There is a better way to use measures. If we apply control charts and other statistical tools that take into account variation over time, we begin to see the changing performance patterns of dynamic systems. This is a *pattern* mentality: with it, people react to characteristic patterns, not to single data points.

The point view in Texas... This approach challenges many current practices. In absence of understanding the variability principle, the Governor of Texas proposed an education *SWAT Team* of *above–average* educators. Their mission, should they accept it, was to enter *low–performing* schools to accomplish a quick turn–around. The findings and recommendations of the team would be binding. Current administrators could be taken to court for failure to implement the team's plan.

But what is an *above–average* educator? What is a *low–performing* school? Statistical procedures assure us that we always have a bottom half, even among Olympic athletes. Should we go to the half of Olympic competitors who lost their races and give them special help? We have ignored performance over time. Control charts will help us tell if any school in the district really is in need of special help or if the variation among them is simply a result of random differences.

Taking the pattern and variability view... Schools working on the pattern and variability principle are raising these issues:

1. How are we doing over time?
2. What shall we measure?
3. Where does the variation come from?

What shall we measure and how are we doing over time? Schools are drowning in data and thirsting for information because their measures are often dictated by accrediting or funding bodies that operate on annual cycles. Of course these bodies need data so they can fulfill their own purposes or aims, but data are also needed to fuel local improvements. Both kinds of measures need to be taken.

Where does the variation come from? Beyond measure is interpretation, understanding where the variation comes from. In education we have tended to blame teachers and students when learning outcomes are disappointing. The variability principle reminds us that variation comes from many sources continuously. Sorting it out is the key to using the data for improvement.

Beyond finger pointing in Houston... The superintendent and assistant superintendent of Pasadena Independent School District in the Houston, Texas, area knew about the variability principle. When they sat down to study the standardized test data that came from the state, they asked a different question from the usual one. This time they asked "Judging from this test data, is any school in our system in need of special help?"

A control chart quickly told them that six schools had, in fact, produced scores that lay outside the calculated control limits. They could now move surely, commissioning the district office's specialist teams to give help where it was really required. For the others, whose scores fell within the limits, they commissioned other teams to work on the common causal factors that would affect all schools in the same way.

The superintendent carried the hand–drawn charts to each school. Principals got the idea right away. "We ought to be looking at the data for our school like this. How did you do that?" Such requests for help were forwarded to the team of trained facilitators developed throughout the district during the prior year.

Like Pasadena, other schools and districts working on the variability principle are not assigning blame to people when the system is the source of variability. They are asking to see control charts of school data of all kinds — from the warehouse to the bus barn to the classroom. They are ceasing to use the data to find the best or worst and beginning to use it for system improvement.

The knowledge principle in schools

A pundit once said, "It ain't so much what you don't know as it is what you do know that ain't so." The knowledge principle calls into question just how it is that we come to say that we know something. The knowledge principle is about theory and prediction and practice. What may seem impossible in practice with one theory may be easy with another.

Columbus could never have reached the West Indies by sailing west as long as he operated under the theory of a flat world. It was possible (except for the intervention of other continents) under the theory of a round one. What accomplishments seem impossible to us in schools today? Perhaps a new theory is required.

Schools working on the knowledge principle are raising these issues:

1. What theories will lead to improvement?
2. How do we create a culture of learning for all the people in the system?

What theories will lead to improvement? Several hundred improvement initiatives of one kind or another may be afoot in a school system at any given time. New legislation and innovative practice are continually adding more.

Washing machine management... School personnel often feel as though they are caught in the agitator cycle: swishing first one way and then the other. To push the metaphor, they are spun dry of energy and enthusiasm for trying new things by the sheer magnitude of keeping up.

How do we create a culture of learning for all the people in the system? Creating what Peter Senge calls the *learning organization* means allowing time to let experimentation happen. The typical cry of school people is, "I don't mind trying something new, but what should I stop doing to allow me to work something else in?"

Progress is being made on this principle by schools who are integrating quality planning with their district and campus planning cycles (the PDSA cycle, shown on the next page is an example of such planning). As they improve the data and analysis in the variability principle, they also improve their ability to generate knowledge that drives planning.

"A pundit once said, 'It ain't so much what you don't know as it is what you do know that ain't so.'"

"The variability principle reminds us that variation comes from many sources continuously. Sorting it out is the key to using the data for improvement."

The PDSA cycle

The PDSA cycle has four parts:

- Plan a change
- Do it — carry it out on a small scale
- Study the results with use of theory
- Act to standardize an improvement, abandon an unproductive theory, or run the test again under different conditions.

By rotating this cycle over and over in multiple settings, people in schools can participate in creating learning that matters to them.

The planned change principle in schools

There are explicit methods for improving existing systems and for stabilizing new or erratic systems. The methods have evolved and have been refined during the 1980s through the work of many consultants and thousands of improvement teams. The improvement method is an outgrowth of the PDSA cycle; the standardization method is based on the SDSA (standardize, do, study, act) cycle. The two models appear below.

Schools working with the planned change principle are talking about these issues:

1. The common misconception that planned change is already going on.
2. What shall we work on?
3. How shall we improve?

The common misconception that planned change is already going on... People sometimes confuse serendipitous improvements with the planned change principle. Just as species evolve over time through random mutations, improvements may eventually evolve in organizations. But the implementer of planned change is more like the biological engineer who carefully selects preferred characteristics and experiments purposefully to produce them. Purposeful change resulting in improvement is the goal.

What shall we work on? There is no shortage of improvements to work on: planned change occurs for the entire organization, for subsystems and processes that cut across departments, and for daily work. Choosing what to work on is part of the district and campus planning processes. The way to improve is through the seven steps for improvement or standardization, using the tools of quality management.

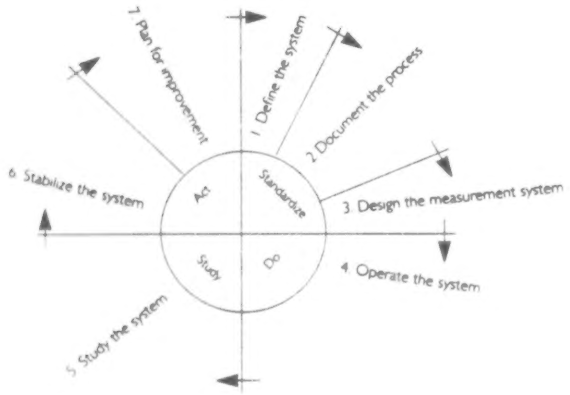
How shall we improve? Implementers of planned change have taken on a range of pilot improvement team projects. Here is a sample list from a large suburban district whose objective was to get experience in all aspects of the district:

Administration, classroom, and support services...

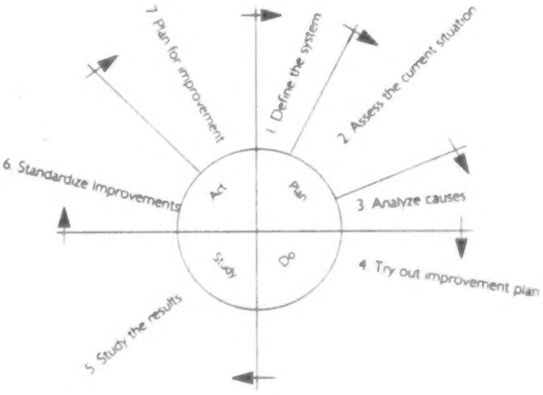
- Improving speech referral turnaround time
- Improving warehouse delivery time
- Improving use of state learning objectives in elementary curriculum
- Improving student learning through students monitoring their work with control charts
- Improving teacher and student attendance
- Improving phone service at central office
- Improving communication between central office and buildings; between buildings and community (The communication projects were difficult to quantify)

The project team members agreed that they would not recommend that a first-time improvement team take these on without very close monitoring and assistance of a technical assistant very familiar with the improvement process and tools.

TQT standardized process™


7. Plan for improvement
1. Define the system
2. Document the process
6. Stabilize the system
Act
Standardize
3. Design the measurement system
Study
Do
4. Operate the system
5. Study the system

TQT improvement process™


7. Plan for improvement
1. Define the system
2. Assess the current situation
6. Standardize improvements
Act
Plan
3. Analyze causes
Study
Do
4. Try out improvement plan
5. Study the results

The people principle in schools

System improvement and the transformation toward a quality orientation as the driving force in the organization must come from people. Leaders, teams, and individuals all have a role. Improvement is not add–on work; it is the work.

Above all, people must understand the school's purpose and how their work contributes to it. This includes students, who are often ignored as having a stake in the improvement of their own schools and learning.

On stealing joy... Dr. Deming teaches that school is the first of our social institutions that robs people of their intrinsic motivation for learning, for accomplishment, for the joy of doing.

By emphasizing grades and rewards we acculturate our children to an environment of fear of failure. Research is clear on the point: in an environment of fear, where threat is prevalent, people revert to more primitive behaviors controlled in the older centers of the brain. In such environments, extrinsic motivation takes over.

The more we give gold stars and/or *A's* and *F's*, the more difficult it will be to tap the inherent capacity of our students to learn for the pure joy of learning.

The people principle leads to process analysis, instead of finger pointing — Schools working on the people principle are finding ways to align their people to organization goals and to encourage them to take action. They are using control charts to help distinguish the sources of variation in measures of performance, to avoid laying blame solely on the people who work in the surrounding system in which they are embedded.

Teachers in Pasadena, TX, for example, can make control charts to see if they should work on common causes of variation in the class test scores, or whether some students should be singled out for special help.

Cooperative learning... Cooperative learning and interdisciplinary curriculum, when approached as methods that really engage students in constructing their own meaning, are also compatible with the people principle. The work of William Glasser on control theory is also compatible, and many schools have found Glasser's reality therapy useful as they think about creating a school environment where everyone can do quality work.

Current research on educational change, however, indicates that the professional preparation and development of educators rarely includes the skills for collaboration, even though collaboration among administrators, teachers, and students in planning and improving teaching practice is nearly always associated with more effective schools.

Work harder versus work smarter in education... Fullan and Stiegelbauer argue that there are two forces for change operating on education today. The first, represented by standardized testing and demands for accountability and back to basics, is entrenchment into the work harder approach. The second, represented by systems thinking, cooperative learning, and other such initiatives, is restructuring to support working smarter. The values and principles of quality management are more in keeping with working smarter.

"Improvement is not add–on work; it is the work."

"The more we give gold stars and/or A's and F's, the more difficult it will be to tap the inherent capacity of our students to learn for the pure joy of learning."

Final thoughts

Quality management in education is neither a fad that will pass nor an oxymoron — schools really can be of high quality, providing students the opportunity to create meaning that has value in their lives. The value of applying quality management to education will be seen in the resulting economic, social, physical, and emotional improvement.

Education can be a place where people are allowed to take pride in their work because they work in systems that encourage them to succeed rather than assuming that a third or more will fail. Quality management can help by providing an integrative theoretical framework that makes sense of other improvement initiatives.

The combination of humanistic philosophy and hard science reflected in the foundation principles is unique in its scope and applicability to any system, large or small.

But it will be hard work that will take decades if we are to uproot old practices that flow from theory as outdated as Columbus' flat world. It is not a job for the faint of heart, but it has great promise. ◆

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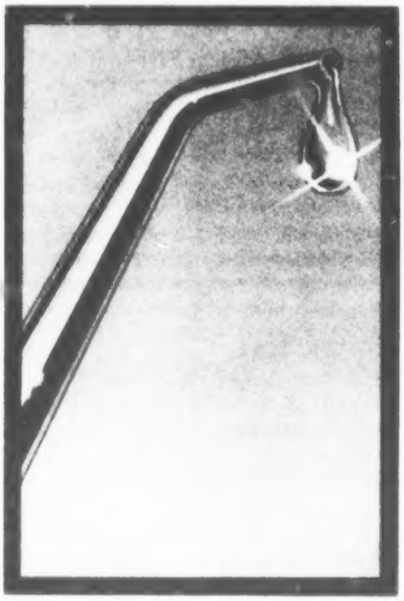
MANAGEMENT MANIFESTO

By Yvonne Siu-Runyan and Sally Joy Heart

Deming's 14 principles have revitalized Japanese industry, and they can form the basis for restructuring the education workplace as well

W. EDWARDS DEMING, THE AMERICAN genius who revitalized Japanese industry, is unequivocal: "Workers are responsible for only 15 percent of the problems, the system for the other 85 percent." And the system, he says, is the responsibility of management.



Deming's view of attacking problems in industry parallels what many reformers say about schools: Improving the quality of public education, they maintain, requires making structural changes in the system, rather than targeting individual workers for reform. According to these reformers, most school problems originate from the system itself, and management is responsible for the system. So, the way to generate improvement in schools is to reform school management.

But how do you, as a school executive, reform your profession? School executives, admittedly, often are reluctant to use a private-sector management approach in public education, arguing that business is different from education and that we cannot successfully run schools as if they were corporations. In fact, education *is* different from industry. But managing people and resources is largely the same for any organization—whether in business or education, the private sector or the public arena. And growing numbers of school executives are looking to Deming's management model for help.

The Deming model is a useful tool for analyzing management systems in public schools. The approach, first used successfully in Japanese industry and business, has worked well in a growing number of American companies that needed to change their organization systems to thrive. Rather than viewing managers as "bosses," Deming's approach is based on teamwork and collaboration among managers and workers. The process is governed by the principles of constancy of purpose for everyone in the organization, quality of product or service, and cooperation at all levels of the organization.

Under the Deming model, 14 essential principles must be considered when restructuring the workplace environment. We'll outline those principles for you in a moment. For each of the 14 points, we will describe how the principle is currently used in a school setting or offer suggestions for how that principle might work in schools.

1. Create constancy of purpose for improving the product or service. It's easy to "stay bound up in the tangled knots of the problems of today," says Deming. "But no company without a plan for the future. . .will stay in business."

The same is true in education. School systems function best when workers, mid-level managers, and top-level managers agree on goals and priorities for the future. Trouble is, in most schools, the goals and priorities of staff members extend no further than token agreement that schools should educate children.

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"School administrators are often concerned primarily with fiscal constraints," say Samuel B. Bacharach and Sharon C. Conley in a 1986 article on educational reform in *Phi Delta Kappan*. "School boards often focus on broad ideological goals. Meanwhile, teachers tend to focus on 'micro' issues related to their own students and classrooms." Although such differences in purpose are understandable, they often result in a lack of unity. A system cannot flourish when groups are pulling in different directions.

What's needed is a common vision—a goal all groups agree on and feel good about working toward. An example of what can happen when schools develop a common vision based on sound pedagogy can be found in six North Carolina schools. This innovative undertaking, called Project Design, uses permanent steering committees to improve instruction, according to Bettye MacPhail-Wilcox and her colleagues in a 1990 article in *Educational Leadership*.

What's needed is a common vision—a goal all groups agree on and feel good about working toward

The committees—made up of the superintendent, various central office staff members, principals, teachers, and school board members—make instructional improvement their constant purpose. Preliminary results of Project Design reflect a strong commitment to improving education on the parts of teachers and administrators, as well as improved performance by students and a high level of involvement and support by parents and the community.

2. Adopt the new philosophy. Adopting a new approach means changing perspectives and breaking from tradition. In schools, says Psychiatrist William Glasser, that means moving beyond a fragmented instructional approach and moving toward challenging students to think and defend their ideas. To make this happen, Glasser says, what's required is not "boss management," which relies on coercion and turns workers and managers into adversaries, but "lead management," which relies on cooperation between managers and workers. Teachers and school executives must work together to rethink what they do, how they do it, and how they measure it.

Barry S. Raebeck, principal at Thomas Harrison Middle School in Harrisonburg, Va., reports in a 1990 *Educational Leadership* article that staff members collectively implement policies and activities they believe will make their school a better learning environment. They're using team teaching, positive public acknowledgment and recognition of staff members and students, and "unsatisfactory" (U) grades rather than F's for failure. The overriding theme is cooperation—which means everyone from principal to custodian is working together in a spirit of mutual respect toward a common vision.

3. Cease depending on mass inspection. In industry, says Deming, mass inspection cannot solve the problem of poor quality. The people who make the product are the only ones who can ensure high quality—and they must do it at each step of producing every item.

Education's version of mass inspection is standardized testing. It's the measure by which we determine the quality of what we do. But standardized testing by its nature diverts us from the true purpose of education—which is to enhance the ability of each student to learn and think constructively, critically, and creatively. Mass testing fails to get an accurate measure of students' abilities to use diverse strategies, skills, and information.

Mass testing also judges teachers according to their students' performance on tests—and thereby diverts teachers' attention from creating cooperative communities of effective learners. Jane L. David puts it this way in a 1991 *Educational Leadership* article on restructuring education: Teachers are "caught in a time warp between the old and the new." They're asked to develop new methods of teaching students to think, yet "they are still judged publicly and privately by standardized tests that emphasize isolated facts, rote learning, and content coverage."

The only way to get an accurate, complete picture of what students know and need help with is to observe and interact with students. Efforts are under way in a number of states to make assessment more closely match what we want students to know. California, Illinois, and Michigan, for instance, are developing techniques for evaluating student literacy that involve the whole process of reading. These tests—which use narrative materials selected from children's magazines, trade books, reference books, and textbooks—aim at matching the kinds of reading materials students actually read each day and assess students' ability to use appropriate strategies for reading different kinds of material.

These new approaches to assessment do not constrain teachers' efforts to teach creative and critical problem solving. In fact, these approaches can help schools move toward creating an environment that engages students in active, reflective learning.

4. End the practice of awarding business by price tag alone. "Price," emphasizes Deming, "has no meaning without a measure of the quality being purchased." But in business, as in education, decisions often are based on cost. Pressured to reduce costs, managers often purchase services and products according to what is cheapest. But schools are far more likely to ensure high-quality education by hiring excellent teachers, buying top-quality education materials, and designing effective learning environments than by shaving costs.

Indeed, sacrificing quality in the name of cost-saving can be costly in the long run. Jonathan Kozol, in his book *Illiterate America*, says individuals who lack the skills and options provided by a sound education are more likely to turn to crime and substance abuse. And the cost of incarceration—averaging $17,000 a year per inmate in state prisons in 1988, according to the 1989 *Corrections Yearbook* of the Criminal Justice Institute—far exceeds the costs of schooling.

5. Constantly improve the system of production

and service. Quality, says Deming, "must be built in at the design stage, and teamwork is essential to the process." Given the option, most school people would agree: Working as a team member committed to delivering top-quality instruction is more effective than working alone. And for school managers, working collaboratively with staff members—who are striving to improve their own performance and contribute to the overall system—is more likely to bring positive results than is managing by coercion and intimidation.

Grant W. Simpson, in a 1990 *Educational Leadership* article on sustaining innovation, describes one of the increasing numbers of school leaders who take this approach. Cheryl Snell, principal of DeKeyser Elementary School in the Utica (Mich.) Community Schools in suburban Detroit, tries to inspire active participation and collaboration among her staff members. Her aim is to engender collegiality among teachers and encourage them to reflect on what they do, take responsible action, and strive to improve instruction. By supporting teachers and encouraging school personnel to take the initiative in solving problems, Snell helps move her school toward high-quality education.

In schools, as in many industries, the distance between managers and workers is a plague on effectiveness

6. Institute training and retraining. "It is very difficult to erase improper training," says Deming. And that certainly applies in schools. Consider the treatment of new teachers: Generally, they're on their own, learning about procedures, policies, and curricula by word of mouth—a hit-or-miss approach, at best.

In Holland, one of us (Siu-Runyan) observed an example of an effective support group for new teachers. In a meeting focusing on discipline and management techniques, the principal and teachers discussed a troublesome student at length and told about discipline techniques that had worked for them. The beginning teacher jotted down the suggestions and said she felt much better knowing that others had trouble with the same student. She said she would try out the suggested remedies and report back at the next meeting about how her week had gone with the student.

This kind of open communication and support in a nonthreatening setting helps make for effective teaching right from the beginning.

7. Provide leadership. "Leadership is the job of management," says Deming. "It is the responsibility of management to discover the barriers that prevent workers from taking pride in what they do."

In schools, as in many industries, the distance between managers and workers—that is, between administration and actual classroom experiences—is a plague on effectiveness. Most school executives would find it much easier to stay current and understand classroom problems if they taught frequently and worked regularly in classrooms. This kind of participation makes you aware of the problems, challenges, and complexities teachers face.

Again, the Dutch schools provide a model: In Holland, all school administrators teach as part of their regular assignment. When Siu-Runyan asked teachers, "What are the qualifications for being an administrator?" the universal response was, "You must be a good teacher, of course." Siu-Runyan probed further with, "Are there any special courses you have to take to be a school administrator?" The resounding response was, "Of course not; you learn on the job. But first you must be a master teacher. That is the No. 1 criterion for being a Head [principal]."

8. Dispel fear. "It is necessary for better quality and productivity that people feel secure," says Deming. Fear is a motivator, he adds, "but it does not motivate toward constructive action." Learning and risk-taking cannot take place in an atmosphere where people are afraid to ask questions, take a stand, or make suggestions.

To inspire learning in their students, teachers must be learners themselves. That means recognizing firsthand that learning entails making mistakes. And school managers must provide teachers, students, and staff with an environment in which they feel secure enough to challenge the status quo, explore new ways of teaching and learning, and use mistakes as feedback rather than punishment.

North Carolina's Project Design offers an example: The project leaders understand the necessity for building trust. They encourage teachers to say, "This isn't working," or "I don't know exactly how to do this"—and they encourage teachers to try new approaches.

If you want to promote new approaches to learning in your schools, you must honor people, support and encourage them to take risks, and help them break from traditional forms.

9. Break down barriers between staff areas. When managers and workers collaborate and function as a team, says Deming, the result is a high-quality product. In schools, opening communication among staff areas—certified and classified, as well as instructional areas—reduces competition between individuals and departments and adds to the overall energy needed to create high-quality learning environments and experiences.

Some school executives put this concept to work by having what they call "alignment meetings," where the entire school staff—instructional, counseling, custodial, food services, secretarial, transportation, and so on—meets to celebrate victories and work toward solving problems.

10. Eliminate slogans and exhortations. "Slogans never helped anyone do a good job," Deming says. Instead, "they generate frustration and resentment." Slogans and exhortations suggest that the worker is to blame if things don't get better.

True commitment to improving performance comes from the internal motivation of individuals. And people are more likely to achieve the organization's goals when they're involved in setting those goals. If workers want to put up slogans, that is *their* prerogative. The job of management is not to coerce, but to generate support, cooperation, and leadership for a process that brings together the energy of everyone for a common vision.

As teacher Dan Brickley and Principal Tim Westerberg describe it in a 1990 *Educational Leadership* article, the move toward restructuring at Littleton (Colo.) High School has involved teachers and administrators in ongoing discussions of the school's strengths and its needs for change. Together, staff members have created common goals and a vision statement that says, ". . . as workers, parents, citizens, and individuals, members of the next generation should know how to question, invent, anticipate, and dream . . . so that they [are] . . . prepared to make a living, make a life, and make a difference."

11. Eliminate numerical quotas. "A system that fosters an atmosphere of receptivity and recognition is far preferable to one that measures people by the numbers they turn out," says Deming. Nothing dehumanizes people more than being reduced to statistics. Looking for quick ways to improve test scores rather than working to foster creative problem solving, critical thinking, and higher-level learning defeats the purpose of education.

As Rafael Aguayo puts it in *Dr. Deming, the American Who Taught the Japanese About Quality*, numerical quotas are more likely to serve as ammunition for frustration and jealousy than to engender the cooperative teamwork that nurtures productivity.

LEARN MORE ABOUT TQM

The following books and articles can tell you more about Total Quality Management, the approach to management developed by W. Edwards Deming.

Aguayo, Rafael, *Dr. Deming, the American Who Taught the Japanese About Quality*, New York: Carol Publishing, 1990.

Deming, W. Edwards, *Out of the Crisis*, Cambridge, Mass., Massachusetts Institute of Technology Center for Advanced Engineering Study, 1989.

Deming, W. Edwards, *Quality Productivity and Competitive Position*, Cambridge, Mass., Massachusetts Institute of Technology Center for Advanced Engineering Study, 1982.

Gabor, Andrea, *The Man Who Discovered Quality*, New York, Random House Times Book, 1990.

Walton, Mary, *The Deming Management Method*, New York, Dodd, Mead & Co., 1986.

Making state-by-state comparisons of standardized test results is a good example of how not to use numerical quotas. If teachers end up teaching to the test to raise scores, we have no idea of what students actually learned. Deming puts "incentive pay" in the same category as numerical quotas. Both incentive pay and numerical quotas encourage people to turn out numbers rather than quality. In schools, which have limited budgets for teacher salary, incentive pay results in many losers and few winners.

12. Remove barriers to pride of workmanship. People want to do a good job, and teachers are no exception. Consider the barriers that get in the way: arbitrary goals that serve the needs of administration; outdated, faulty, or insufficient equipment; curriculum materials that are old or no longer relevant. These obstacles can discourage people and crush the spirit. In such an environment, says Deming, mediocrity is the safest response.

In teaching adult writers, one of us (Heart) discovered many people were unaware of their ability to express themselves artfully and passionately. They considered themselves mediocre writers with little to say—a perception usually based on the treatment they had received from their teachers in school. They had learned the value of conformity. To discover their own potential, they needed a learning environment that nurtured self-confidence, creativity, and adventurousness.

The same is true for school executives: You need to remove obstacles and make teachers' jobs easier. Sit shoulder-to-shoulder with teachers, and solicit information about what's not working and how you can help. Then act on the information you receive.

13. Institute a vigorous in-service training program. Most people believe that when they've completed their formal education, they've learned all they need to know. In fact, we constantly need new skills, techniques, and information just to keep up in our changing world. As Deming says, "Education and retraining—an investment in people—are required for long-term planning."

The opportunities should be many and varied: credit course work, seminars, workshops, independent study, mentor programs, informal discussion sessions, and leaves of absence for travel or other professional experiences. Such experiences not only enhance teachers' professional capabilities but also contribute to overall well-being, vitality, and spirit.

14. Take action to accomplish the transformation. The process of instituting change begins with management. In other words, it begins with you. Individual workers are helpless to change the system. To chart a course for change, you as manager must be willing to forgive past mistakes and learn from errors. Deming points out it's hard for managers to acknowledge their mistakes when they've "been paid high salaries to be right." But without that kind of learning, you can't move forward.

Beyond this, all the personnel in your school must make a commitment to moving toward the shared vision—with you as a manager guiding and serving as a model for the change process. You must build support for change into the system—so enough people are committed to transformation that it won't be derailed by staff turnover.

A final comment: The process of change never ends. Restructuring schools is never finished. You, your teachers, and your support staff members must continue taking risks, learning from mistakes, and using the information you gather to adjust the process so it continues working in the most effective way possible. When you create this kind of honest, mutually respecting attitude among staff members, you have the makings for a powerful learning environment in classrooms.

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Total Quality Management

by Tyler Weaver

In the years following World War II, W. Edwards Deming, an American statistician with a new management theory, took his ideas to Japan. The Japanese, devastated by the effects of the war, were looking to restructure their economy, and Deming's principles became the blueprint they needed. Now, more than four decades later, Japanese products are in demand worldwide.

The Japanese success story has made Deming's management theory, which some call Total Quality Management (TQM), a phenomenon that is getting renewed attention in America. With its focus on customer satisfaction, employee empowerment, and product quality, it has stirred interest among American managers, from car manufacturers to hospital administrators, and most recently, educators. This Digest looks at the tenets of TQM and their application to schools.

What Is the Philosophy of TQM?

Although no two businesses use TQM in exactly the same way, its theory rests on two basic tenets. The first and most important is that customers are vital to the operation of the organization. Without customers, there is no business, and without business, there is no organization. Consequently, it should be the primary aim of any group to keep customers satisfied by providing them with quality products (Deming 1986).

These ideas are not foreign to most organizations; what makes TQM unique is its call for a restructuring of management methods to create that quality. TQM proponents urge organizations to turn nearsighted, top-down management "on its head" by involving both customers and employees in decisions. This second tenet, that management needs to listen to nontraditional sources of information in order to institute quality, is based on the belief that people want to do quality work and that they would do it if managers would listen to them and create a workplace based on their ideas (Deming).

Managers, in the TQM view, need to become leaders who "not only work in the system but also on the system" (Rocheleau 1991). A company will see continuous improvement in products only when managers realize all systems consist of interdependent parts and work to aim all those parts toward a vision of quality, proponents argue. This type of leadership is needed to ensure that product quality improves "constantly and forever" and truly satisfies the customers (Deming).

How Does TQM Create an Environment that Promotes Quality?

TQM is more than just a philosophy. In addition to proposing new theories about the workplace, it advocates specific changes that managers need to make if they want to improve the system. These changes are best described in Deming's "14 Points," which are condensed under the four categories below:

- *Customer Relationships*: Customers can be either internal or external to an organization. Just as a customer is the person buying a product in a store, an employee is the customer of management. Managers need to realize that quality work will not be done unless they provide employees with quality products to work with (Blankstein 1992).
- *Employee Empowerment*: TQM starts at the top but should permeate the workplace; it fact, it will fail without employee involvement. Since workers know more about their jobs than management does, their input is vital to improving the system. It is a manager's responsibility to continually train employees in the methods of TQM, involve them in management decisions, listen to their suggestions for system changes, and work to implement those changes (Schmoker 1992).
- *Continual Gathering and Use of Statistical Data*: Most companies monitor the quality of their products by doing mass inspections that determine how many low-quality items are being produced, but Deming calls for monitoring of the production process by continually gathering statistical data so that problems can be identified as they are happening instead of when it is too late to solve them. When problems are identified, they should be the focus of discussion, and the groups discussing them should rely on the data to institute change instead of randomly assigning blame to individuals or departments (Deming).
- *Create an Environment that Promotes Unity and Change*: People need to feel comfortable discussing problems and suggesting solutions. Managers need to work at breaking down barriers between departments so that interactive discussion can take place. Fear must be eliminated. Also, managers are urged to do away with slogans, quotas, goals, and objectives since they encourage competition between workers and put the focus on individual results rather than process (Deming).

How Does TQM Translate to Education?

Considerable effort has gone into translating ideas generated by TQM to education, and adaptations of Deming's fourteen points pepper recent educational journals. Most of the points, such as the dissolving of barriers

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between departments, are essentially the same in education as they are in the business world. Some TQM advocates, however, call for changes in education that may seem radical to educators.

• *The Role of Students*: TQM recognizes students as both customers and employees of the educational system. Administrators need to involve students in their own education by training them to question the learning process, and once the students have questioned it, administrators need to seriously consider student proposals for change (Olson 1992b).

• *The Role of Teachers*: TQM calls for changes in teachers' relationships with both students and administrators; teachers need to view education through students' eyes, and they need to work with administrators as a team. This teamwork is largely the responsibility of administrators, who need to delegate some of their responsibility and power to teachers (Rhodes 1992).

• *Testing and Evaluation*: Instead of using standardized tests and grades to measure students' progress, schools that embrace TQM often try to assess student progress regularly throughout the school year. By doing so, they avoid bringing problems to students' attention at the end of the year, when it is too late to do anything about them. The same sort of process is used to evaluate teachers and administrators as well; instead of basing teacher evaluation on one classroom visit, teachers are evaluated throughout the year (Blankstein).

Where Is TQM Used in Education?

If there is a comprehensive, well-documented, and relatively longstanding educational TQM program, it is the program at Mt. Edgecumbe High School in Sitka, Alaska, where it has been a way of life since 1988. Mt. Edgecumbe has involved students to the same degree that it involves teachers. Students at the school track their own progress, have input into the education they receive (in one instance, the class schedule was altered in response to students' evaluations of how teachers spent class time), and operate their own salmon smoking business, which brings in thousands of dollars each year from east Asian countries (Rocheleau).

Mt. Edgecumbe also downplays grades and standardized tests in favor of continuous evaluation, which makes comparisons to other schools difficult. The percentage of Mt. Edgecumbe students who enter and stay in college is approximately twenty times the norm for Alaskan students with similar backgrounds (Olson 1992b).

Other schools have been slower to adopt programs that are as comprehensive as Mt. Edgecumbe's. Educational TQM is so new that most efforts to institute it are still in their infancy. In the words of Olson (1992b), "while TQM has generated a lot of talk in schools, it has produced less action." If schools do use TQM, they usually implement it in areas that most closely resemble TQM in business, such as contracting out custodial services and processing purchase orders. Another common practice is to use TQM methods to solve a specific problem, such as student absenteeism, instead of attempting to apply TQM principles to the school or district as a whole.

Is TQM a Fad?

The novelty of TQM and the fact that there are so few comprehensive TQM systems in education have caused many people to label quality as a fad. They argue that TQM, like so many management theories before it that educators tried to borrow from the business world, is destined to fade into obscurity.

Indeed, there is some indication that even in the business world quality is given lipservice more often than it is applied. A 1992 study for the American Quality Association revealed widespread interest in quality. But the study also turned up many companies that have instituted TQM practices without understanding that it requires a gradual transformation. This steady improvement happens only when an organization's managers have long-term vision and dedication to systematic change. The primary emphasis in most businesses is still on short-term profits and individual performance rather than teamwork and customer satisfaction (Fuchsberg 1992).

The current state of TQM is perhaps best summed up by Schmoker: Some "has been written about [it]; little of it has been absorbed, believed, and implemented in American schools or businesses." This might be explained by the fact that systematic change requires time, but it might also be an indication the quality movement is not achieving its vision.

It is doubtful that interest in TQM will simply fade away, especially since TQM in education has received support from both business and government. Several districts have received training from such successful TQM businesses as Toyota of America (Schmoker), and at least twenty states are considering awards for quality, several of which will be open to educators. In addition, national award programs for quality business management, such as the Baldrige Award, are considering opening their application processes to educators (Olson 1992).

With this type of interest and support, the educational quality movement will likely generate continuing interest. TQM may not hold all the answers for an ailing educational system, but it does shed some new light on educational management.

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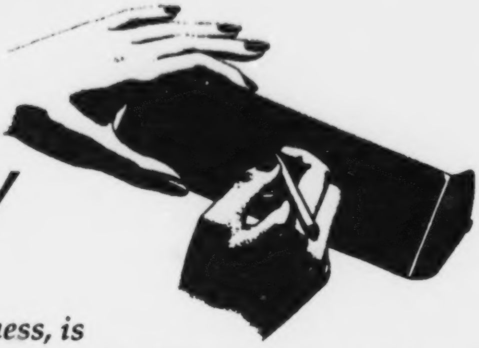
The Cost of Quality



by Jim Carras, Denny Dowd, and Betty McCormick

The Cost of Quality (COQ), as defined by business, is essentially a way of looking at the cost of conformance vs. the cost of non-conformance.

Across the country, schools are exploring the use of Total Quality Management (TQM) as a means of implementing site-based decision making and improving student performance. Yet, little attention has been given to the Cost of Quality — a TQM tool that may well be a vehicle to assist school board members and other interested stakeholders in communicating educational issues and determining budget priorities. The standard elements of cost quality include:

Conformance Costs. *Prevention costs* include all activities done to prevent errors or defects from ever occurring, e.g., developing procedures for error avoidance. *Appraisal costs* are those spent in testing and checking products before they are moved to the next level of production.

Non-conformance Costs. *Internal failure costs* involve finding and fixing problems or errors before the product reaches the customer. *External failure costs* are those that result after the manufacture and release of the product, e.g., product recalls. External failure costs can be substantial in that they involve not only the loss for repairs, but also the potential loss of goodwill and product confidence with the customer.

Businesses spend a considerable amount of their budget on COQ issues in the creation of their product. Often, too much is spent in failure costs and not enough in prevention. However, if prevention costs are increased, savings can be realized in appraisal, internal, and external costs. In other words, dollars spent in prevention are often investments that will produce savings in all other categories.

Cost of Quality in Education

Just as with commercial businesses, education must be concerned with the cost of quality in education (COQE). Education must examine ways to ensure that the money is being spent in the most cost-effective manner for a product that will meet the needs of the learner and the community. There is already much evidence to support the fact that education has experienced great internal and external failure costs (e.g., test scores, dropout rates, loss in confidence and support of schools). There is also much evidence to support the fact that education has spent more on appraisal than on prevention. Now, as schools begin to implement the concepts of TQM, it is essential that the concept of COQE become a part of that implementation.

To apply the COQ elements to education, it may help first to define and identify some of the educational activities that would fit into each of the categories. Costs include time, effort, and expenses associated with the conduct of the activities.

Prevention Costs

Development and administration of hiring practices
Selection of qualified teachers and teacher screening
Curriculum and instructional staff development
Research for improved training techniques and systems
Pilot programs to verify training materials
Development of procedures and policies for administrators and teachers
Conducting needs assessments for new programs and course changes
Health screenings/substance abuse and sex education
Problem prevention counseling for students
Preschool and parent-education programs
Special education programs
Full-service schools
School-to-work transition programs
School improvement planning
Wellness programs
Health care and nutrition services for low-socioeconomic students

Appraisal/Inspection Costs

Teacher performance evaluation
Teacher evaluation of student performance
Achievement testing
Student attendance monitoring
Teacher certification
District self-assessment
Audits
Compliance activities

Accreditation activities
School-performance monitoring

Internal Failure Costs

Remediation programs
Dissatisfied patrons and students
Disciplinary activities
Retention and observation of non-performers (students and staff)
Reteaching after forced promotion or retention
Correcting curriculum materials errors

External Failure Costs

Dropouts unprepared for employment
Graduates unprepared for employment or higher education
Welfare costs for the unskilled and unprepared
Prison costs for the unskilled and unprepared
Lack of support from dissatisfied patrons and community
Costs of GED, adult literacy, and post-school programs

All of these costs impact upon the schools and, just as with business, the external failure costs may extract the heaviest toll. Though these costs are not found in the typical school budget, it is easy to see that these figures divert needed funds from education. IBM has developed a set of tools designed to assess the economic impact of dropouts. Data gathered from Texas schools, state agencies, research, and non-profit corporations were used to demonstrate this impact.

These data indicate that if the present dropout rate continues, nearly two billion dollars in incremental annual tax revenues will be needed to cover the welfare, prison, and crime costs of dropouts in the year 2007. However, if schools achieve the 90 percent graduation rate called for in the National Educational Goals, by the year 2006 the increased taxable income would generate over three billion dollars in new tax revenues per year.

An additional aspect of external failure costs is that of producing a product for which there is no market. In education, this may take the form of offering classes and preparing students in technical or vocational skills no longer relevant to the job market.

The process of identifying costs as prevention or failure causes one to realize that many educational programs and activities may be characterized as either. For example, a literacy program for secondary school students may be seen as a failure cost as a result of previous performance or it may be seen as a cost of preventing future failure, just as the provision of meals may be viewed as the failure of the community to send students to school properly fed, or as a prevention program that assures that students have the proper nutrition to help make them successful learners. As business has demonstrated, however, the costs and effects of focusing on prevention affect change in all other dimensions.

If schools achieve 90 percent graduation rate, the increased taxable income would generate over three billion dollars.

Education can use COQE to examine school budgets and determine those areas impacted by failure costs; then, by redirecting and targeting dollars to prevention activities, failure costs and the need for appraisal costs can be reduced. All of which results in greater cost savings to the schools, taxpayers, and society as a whole.

Applying COQE in a School District

The Arlington Independent School District, in collaboration with The Carman Group of Dallas and the Texas Governor's Office, identified examples of failure costs in its budget. One of the issues identified was the failure cost associated with a student who must repeat a grade level. This information was then contrasted with preventative issues (i.e., What could have been done earlier to prevent this and future failure costs?).

Research has shown that at-risk students who participate in a quality preschool program show improved scholastic achievement and are more likely to graduate from high school, attend college, and attain productive employment. Such students are less likely to require special education, and for girls, there is a reduced likelihood for teen pregnancy.

In the Arlington ISD, for the 1991-92 school year, the cost per student to repeat a grade level was $3,940. The cost of the prekindergarten program was approximately $970 for the same period. In terms of COQE, it is easy to picture the scenario whereby $970 is invested in providing a quality preschool program for an at-risk four-year-old student. Due to the boost the child is given at that time, $3,940 is saved when the child does not have to repeat the third grade, and another $3,940 may be saved if the child does not repeat seventh grade. The student graduates from high school and therefore does not incur the cost of the GED program. The student finds productive employment and does not end up unemployable or in prison at a cost of approximately $30,000 per year. Though such a scenario contains speculation, the reality is that by using the COQE process, a district is better able to look at its programs and expenditures and communicate that information to its members, the public, businesses, and taxpayers.

Many programs in a school system can benefit from a COQE analysis. For example, special education programming for the district averages $8,390 per student per year. Viewed from a preventative perspective, it is providing the individualized education and support needed to ensure that the student is educated to his or her fullest potential, thus providing the skills needed to become a successful, functional member of the community.

The Arlington ISD Success Class is an alternative education placement of elementary students with severe behavioral problems. This program has a minimum placement of 12 weeks and the cost for 70 students for the 1991-92 school year was approximately $234,212. Yet, in view of the potential for future and community related problems, the prevention costs far outweigh the internal and external failure costs.

Supporting Quality Education

As a new technique, Cost of Quality in Education needs additional research and study, as well as a better means for determining specificity of costs associated with activities. However, COQE does offer a process by which schools can examine every activity in relation to its support of a quality education for its students. The process can be applied across the system, including: direct instruction, maintenance and operations, business and administration, and facilities construction.

COQE also may facilitate communication and cooperation with patrons, businesses, and the community. Particularly as schools explore partnership relationships, many businesses may be willing to share information and expertise in the application of COQ. The concept of COQE can aid school districts in making the decisions on where to invest time and resources that will ensure that every child receives a quality education at the least cost of failure and at the greatest cost benefit to the community and society as a whole.

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ENDNOTES

(Sources for data and cost of quality procedures)

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Quality Is Not a Quick Fix

KENNETH R. FREESTON

Remember when problem solving was the rage in educational journals and workshops? We all thought if we could just teach ourselves and kids how to solve problems, our schools and our world would be better places. We produced students and teachers who could generate a multitude of solutions. Regrettably, many of us forgot the importance of problem finding, the critical first step to the problem-solving process.

The *quality movement* is gaining popularity as a solution. Signals of the pursuit of quality now appear in journals, popular media, and a smattering of national organizations ready to train people in the latest solution. While there is mounting evidence that only quality-oriented organizations can survive in the future, unless we go about our business of change in dramatically different fashion from our past attempts, the quality movement in schools will be doomed to the same familiar failings of other annual trends and quick fixes. Well-meaning educators will adopt quality as a solution before spending time articulating the problems it addresses.

Organizational leaders throughout the world are achieving significantly improved results by applying the quality sciences to their organizations. Each leader would tell us that this process is, simply put, hard work. Once understood, the work of Deming, Jurand, Crosby, Glasser, and a host of other experts substantially improves organizational culture and outcomes. Often, when these quality science tenets are applied to the educational setting, they are mistakenly seen as quick fix solutions by superintendents, school boards, teachers, and parents and are not recognized as the core element necessary to restructure our schools.

A commonly used phrase applies here: people who know where they are going are more likely to get there. When going in the direction of quality, educators need to anticipate the formidable obstacles that block the way. This process reveals as much about the deep resistance to change that is present in schools as it does about school improvement. Obstacles block desired paths; they are not reasons to stop movement. Educators who spend the time finding the problems, the obstacles, will have a better understanding of how to achieve quality improvement.

The Word *Quality* Itself

The first hurdle is often the term *quality* itself, which is seen by many as a platitude, a hollow phrase with no substance or meaning. Regarded as laudable, quality is widely perceived as being as unobtainable as are truth, beauty, and justice. The word is used freely by advertisers for everything from sophisticated electronics to second-rate products. As a result, the term has no meaning to people who hear it applied to management theory for the first time.

When applied to organizations, *quality* is difficult to define. Those who understand and apply quality know that slogans and superficiality have no place in a quality setting. To gain educators' acceptance, we have to move beyond the notion that quality is undefinable and that "we know it when we see it." The essence of quality is substance. A consensus is now emerging on the definition of quality as a clear system of continuous improvement that meets customer needs. Only after training and application do these terms carry their intended meaning.

After displaying an initial interest in quality, many people quickly give up trying to learn more about it once they confront the bulky and difficult-to-understand language—emanating from management theory writers—that currently describes the quality sciences. Prematurely, many decide that the idea cannot be applied to schools.

Although achieving quality is very hard work, maintaining it is even harder. Workers, whether in schools or corporations, work harder and smarter when the work meets their needs.

Corporate World as the Model

Skeptical of a school improvement model that comes from faltering American corporate structures, educators are reluctant to apply quality to schools. Many of us do not look at corporate life in America as an example of success, either in terms of results or of ethics. On closer examination, however, we find that it is that failing of

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corporate culture that the theories of W. Edwards Deming and others address (Walton 1986).

Joel Barker has popularized the work of Thomas Kuhn regarding the importance of paradigms in the way we think about change (Barker 1989). One of the reasons so many American corporations fail is that they do not recognize that marketplace paradigms have changed (Dobyns 1992). A generation ago, the company that won was the company that made the *most* product; now the winning company makes the *best* product. In conventional marketplaces, the seller retained power over product design and manufacturing. In actuality, the buyer always had the power, and therein lies the paradigm shift. The buyer now expresses that power through the desire to purchase quality. Companies that have understood the paradigm of customer satisfaction—whether a low-technology company such as Lands End or a high-technology company such as Motorola—have achieved remarkable successes.

What is the American response to foreign companies that embrace quality first? We bash them. We blame them. We think they are the cause of economic downturns.

Through the direct leadership of W. Edwards Deming in the 1950s, Japanese governmental and corporate leaders adopted the notion of quality and propelled themselves into a leadership position in the world marketplace. At the same time, American corporate leaders rejected Deming's thinking and concentrated on issues that were tangential to quality. In a classic example of wrongheaded thinking, some American corporate leaders now blame Japan for the failing American corporate structures. This kind of blaming is wrong-headed because limiting the import of quality products will not help the American corporate structure, the economy, or consumers. Even tax cuts, as psychiatrist William Glasser points out, are not the solution (Glasser 1991). Given the choice, American consumers will spend their new-found dollars on quality products, thus deepening recessionary trends for countries that do not make the *best*.

Deming's ideas work, but they encounter resistance when applied to schools. Some of that resistance resides in the language used by him and other management theorists to explain quality; some of it comes from perceived weakness in the American corporate structure. Much of the resistance, however, resides in two areas: leadership and change.

Leadership

Leaders of quality organizations must live and breathe the essence of quality. In every action they take, every decision they make, they are role models for the rest of the organization. Although a quality school is not a top-down setting, such a school will not come into being unless the school leader is the champion of quality. In my view, two of Deming's fourteen points are critically important to leaders: constancy of purpose and self-evaluation.

Deming asserts that 94 percent of the problems that exist within an organization are within management's power to solve. Yet those who occupy leadership positions in our schools are perhaps the single greatest obstacle to implementing a quality approach to the teaching and learning process. School leaders are so overwhelmed by financial, political, and statutory constraints on their actions that they perceive themselves as powerless to effect real change in schools.

Over the past decade, schools across the country developed mission statements. Generally in narrative form and written by broad-based committees, these statements tend to be characterized as a rational link of platitudes. Once written, these well-intentioned efforts often play no continuing role in schools. Specifically, school and instructional practices remain unexamined for consistency with the mission. In a quality school, constancy of purpose is the critical factor. Whether in Sitka, Alaska; Johnson City, New York; Madison, Wisconsin; or LaJoya, Texas, schools that are serious about quality have a constancy of purpose. The leader articulates that purpose endlessly to all internal and external customers.

Early systems of management theory that were based on inspection of workers failed because the inspection model assumed that fear would motivate the workers to higher levels of productivity. Someone was watching, rating, and ranking. In a quality school, leaders drive out the fear by eliminating inspection for staff and program evaluation. Collecting information is important to making better decisions, but that information cannot be gathered usefully in a culture characterized by fear and mistrust. To optimize the school's mission, every aspect of its work should be critically self-evaluated. In schools, the obstacles to a self-evaluation process are considerable, given the public's concern over student performance and the widespread political pressure for school improvement.

These changes hold interesting consequences for recent initiatives in our profession, such as school-based management. Such efforts at collaborative decision making in schools are good, but taken alone, they are short-range, quick fixes without a leadership commitment to constancy of purpose and self-evaluation.

Just Another Change

We are the victims of our own scattered and disjointed attempts to change. We read an article, attend a workshop, or hire a consultant and get excited because we mistakenly think we have found *the* answer. In reality all we have found is a short-term solution, one that lasts only until the next workshop. Unless schools shatter the norms that work against quality, we will continue to use impulse reactions to ill-defined problems.

Schools across the country are staffed with educators who think we do not need to change. By conventional measures, their students perform well. Our past successes guarantee us nothing, however, when change occurs (Barker 1989). Remember that the Swiss are the ones who invented the quartz watch, but because it did not meet their definition of a watch, they gave the patent away to Texas Instruments and Seiko.

Judy-Ann Krupp and other experts on adult development provide valuable insight into the effects adult developmental stages have on school culture (Krupp 1981). Schools that expanded during the growth-oriented era of the 1960s now find themselves with a majority, in some places as high as 75 percent, of teachers over the age of fifty. Adult development theorists have a lot to say about how these older professionals approach change: they wait it out. Annually, these teachers experience the unbridled enthusiasm of younger teachers and new administrators who attempt to win support for the latest trend. How often have we seen them greet new ideas with a mellow, seasoned response of "this too will pass." Look at back volumes of educational journals, and you will discover that it is the rhetoric that we frequently associate with change that has caused the skepticism of our senior and experienced faculties.

One Year At A Time

The conventional planning process for schools has always been limited to a year-to-year basis. Schools everywhere are funded on annual budgets and, therefore, on an annual basis have to justify the existence of programs and changes. State legislatures convene annually and change the bureaucratic requirements that reign over local school systems. Boards of education require annual reports and other rituals based on a year-to-year approach to planning. Even something as pedestrian as a teacher's planning book contains only enough space for one year.

Partly because of this orientation and a ten-month year, time passes too quickly for teachers. Shortly after the frantic rush of concluding one school year, we begin the frantic rush of preparing for another. The symbolism of this short-range planning is obvious; its effects are disastrous. This pattern of thinking leads well-intentioned people to quick fixes. We mistakenly seek closure as a goal. Remediation and special education practices perpetuate this idea in their emphases on short-range instructional planning. As quality-oriented educators, we can begin to make improvements in our schools when we drop the year-to-year pattern of thinking about our problems.

Think of a goal or want that you achieved recently. What was your immediate reaction? For most people, a void or emptiness follows the short-lived satisfaction. New needs, wants, and goals surface. It is this flow of goal/achievement/new goal that characterizes continuous improvement, a long-range approach to planning that is a core concept of quality.

Although similar to elements of strategic planning and other problem-solving models, continuous improvement is a cycle of planning, doing, studying, and planning again. The process never stops. It begins with a valid statement of wants that is then filtered through beliefs and profound knowledge before the action-planning begins. This plan-do-study approach characterizes the differences between continuous improvement and a blitz of quick fixes.

I Know That Already

Deming asserts that we need to base decisions on profound knowledge. When first applied to schools, this is interpreted as gathering an understanding of existing research. Through effective avenues such as the Educational Research Service in Arlington, Virginia, educators can access current research syntheses on a wide range of topics. However, conducting data searches is only one way of building a knowledge base. In schools, we are now gaining better techniques to measure student performance. Portfolio and performance-based assessment devices will enable teachers and administrators to collect better information, a canon of the quality sciences.

Veteran teachers have a wealth of experience that districts mistakenly discount when consulting a knowledge base. Schools need to look inside, as well as outside, when gathering knowledge. Data searches and research syntheses are valuable, but when consulted and engaged, senior educators can also be excellent resources to the change process.

Collecting the right information and using it to plan and evaluate improvement is essential. Expertise in this area often exists, untapped, in a school's community. In Newtown, Connecticut, community advisory groups are a regular part of the improvement process. When bringing its mathematics curriculum in line with NCTM standards, the school district contacted area corporations and asked them to nominate to an advisory group people whose jobs required a high degree of mathematical competence. Experts emerged in fields ranging from laser technology to statistics. Once convened, the advisory group validated the need to alter mathematics instruction and assisted the district in making the changes.

"I know that already" is the death knell for change in a school. With information doubling every two to three years (Roberts and Hay 1989), we can't possibly "know that already" very often or for much longer. Once we develop experience in basing decisions on profound knowledge and shared values (constancy of purpose), we will move schools forward.

Students Don't Value School

In the fashion of Lake Wobegon, many schools throughout the country meet traditional expectations well. However, good enough is no longer good enough. In quality schools, the entire bell-shaped curve shifts to the right, with learners at all levels of performance improving their achievement through the establishment of higher standards once quality is embraced.

Phil Schlechty, president of the Kentucky-based Center for Educational Leadership in School Reform, sends a wake-up call to senior faculties and educational leaders throughout the country when he observes that high schools are places where young people come to watch older people work (Schlechty 1989). Students, whom Schlechty refers to as knowledge workers, take on a different posture in quality schools. The problem becomes defined as: how do we convince students that learning adds quality to their lives?

Following the research done by psychiatrist William Glasser in American high schools (Glasser 1990), the faculty and students of the Newtown, Connecticut, High School surveyed its student body on issues of quality (Freeston 1992a). Alarmingly, students in Newtown are similar to students in Glasser's research. Like students everywhere, they know when they produce quality work. Ask them, and they'll tell you they don't do it very often, and when they do, it's on the field or in the orchestra (table 1). We have not been effective at teaching students that learning adds quality to their lives.

Deming asserts that we have to drive the fear out of organizations. One way of driving out fear is to reduce or eliminate inspection-driven, coercive models of evaluation, for students and staff, and replace them with the power and validity of self-evaluation.

Recent assessment developments, such as the New Standards Project, will provide more comprehensive measures of student accomplishment because they call for the student to self-evaluate. Schools that embrace continuous improvement collect information and regularly use it to make better decisions. There is an openness to data, not a fear of it. There is hunger for ever-changing techniques based on new information. Information is not feared, hidden, or manipulated.

TABLE 1
Student Survey Results

Question	Student response (mean score; scale 0 to 10; 0 is low, 10 is high)
How would you characterize the level of effort you normally expend in your class?	6
What level of effort are you capable of maintaining in your class over a marking period?	8
How many students do you know are doing their best possible work most of the time?	4
Looking at other students, how hard do you think most of them are working?	5
In what activity or class is your best effort demonstrated in the present school year?	Over 50% cited music/athletics

TABLE 2
Children in America

Every 26 seconds a child runs away from home.
Every 13 seconds a child is reported neglected or abused.
About every minute an American teenager has a baby.
Every 9 minutes one of our children is arrested for a drug offense.
Every 40 minutes one of our children is arrested for drunken driving.
Every 3 hours a child is murdered.
Every 53 minutes one of our children dies from poverty.

Source: Children's Defense Fund. 1992. *The state of America's children 1992.* Washington, D.C.: Children's Defense Fund.

It's Not My Fault

Educators everywhere in America are bombarded by complaints of diminishing student achievement. These attacks have led many of us to respond in a defensive way by pointing to the changed nature of the learner. Citing the good demographic data of Harold Hodgkinson, we often present a compelling list of factors that make teaching more difficult today. The changed nature of the family and the deplorable conditions in which children live (table 2) do indeed shatter the American myth of the Norman Rockwell family.

Growing numbers of schools now understand what changes are necessary to restructure. These changes have little or nothing to do with the student or with family or personal problems. We have to see these deplorable social conditions as context, not product. Unless we are truly going to restructure, when we say all children will learn, we probably should add a footnote: *unless you happen to come from a broken home.* We need to recognize the changed nature of the student and forcibly change the way we teach (Freeston 1992b). A quality perspective helps us make those changes.

Teachers can no longer consider themselves to be self-employed entrepreneurs, hanging their shingle on the hallway door and teaching in isolation from others (Freeston 1992b). In how many schools do we together openly debate a collective belief system? In how many schools do we publicly commit to the achievement of high-risk, high-stakes standards for *all* students? In how many schools do we acknowledge that all people, teachers, students, and parents choose behaviors to meet their basic needs? In how many schools do we meet or exceed those basic needs as the heart of our mission?

A Question of Culture?

Introductory economics classes traditionally examine a nation's or region's natural resources as a predictor of economic success. In truth, countries such as Japan, South Korea, and Switzerland are startling examples of countries with few natural resources that, nevertheless, enjoy enormous world-wide economic success (Dobyns 1992). That is a paradigm shift, fueled by a focus on quality, which, ironically, is an American perspective.

Popular media commentaries suggest that Japanese workers and American workers come from radically different cultures. These cultural differences, it is often argued, explain the difference in performance between the Japanese and their American counterparts. Although clearly there are cultural differences between America and Japan, as there are between most countries in the world, if we continue to see culture as the reason for differential achievement, we miss the point of the quality sciences. Quality is cross-cultural. The greatest irony in this debate is that we taught the Japanese to produce quality and we now buy it.

Certainly cultural issues bear on motivation. In our culture, and many others, internal motivation is a well-documented catalyst for action. Yet, schools still treat people as though external motivation were an effective means of eliciting desired outcomes. Glasser has convinced many leaders that the reason Deming's fourteen points work is that they are actually rooted in what psychologists call "control theory." Oversimplified, control theory holds that, as individuals, we seek to satisfy wants that we define as important to us (Glasser 1984). These wants come from our desire to meet basic human needs as Glasser and others define them. In "stimulus theory," by contrast, the stimulus sets the standard and is an external focus for change. People and organizations change best when they are internally motivated to do so. Leaders who continue to behave as though stimulus response theory were effective face insurmountable obstacles to quality. They just can't get there.

Summary

Inherent in all of these obstacles is the issue of attitude change and the difficulties it poses for school improvement. There is a fundamental resistance to the term *customer*, common in business, as it applies to schools. Teachers do not readily perceive themselves as suppliers of a service (teaching) or a product (learning) to a customer base.

The customer orientation, although different in schools from business, holds that we do what we do in schools in order to meet someone's needs. Why else would we teach, if it were not to fill a need, individual or societal? The debate about whether schools have internal or external customers is specious because we have too many customers. To start the process, pick one. Collect information to determine the needs, collect more information to see if the needs are being met, then identify the areas of improvements to be undertaken. Start.

What lies behind the obstacles? Although certainly not a quick fix or panacea, quality management holds answers to questions that are at the center of the school reform debate. By establishing, together, a system of core beliefs, teachers, administrators, students, and parents can ask themselves, when faced with difficult choices, "What do we believe?" and use the answer to make better choices. Through the concept of continuous improvement, schools will less frequently be in a defensive position, reacting to external criticism. Instead, educators can work together to establish and maintain a constancy of purpose and break the cultural norms of autonomy and independence that impede collaborative decision making. When educators collect information and understand the statistical importance of variance, they use knowledge and beliefs to make better decisions. Through the establishment of higher student achievement outcomes, which results from a quality orientation, performance increases are more likely for all students.

We must acknowledge the psychological reality of internal motivation and use it as an accelerant for school improvement. When a school system works together to establish a constancy of purpose, openly operates to continuously improve the teaching and learning process, collects information to make decisions, and strives daily to meet or exceed the needs of its students, it achieves quality improvement.

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TOTAL QUALITY & ACADEMIC PRACTICE

THE IDEA WE'VE BEEN WAITING FOR?

BY PETER T. EWELL

In the academy, where doubt is a foundation of discourse, few things arouse more suspicion than the obviously fashionable. And when the fashionable is accompanied by demands to change time-honored practices, and those demands are delivered with a rhetoric of messianic conviction – as is often the case these days with Total Quality Management – instinctive distaste quickly turns to rejection.

Much of the academy's initial reaction to Total Quality (TQ) has been gut-level and negative; until this stage is passed, what good will come of TQ is hard to determine. Yet, there is undoubtedly something to the movement. Beneath the hype, TQ does seem to contain new insights about how we can and should operate in higher education. Just as importantly, these insights seem tailored to the times. Hard as they may be to digest, TQ's root concepts intrigue growing numbers of professionals in higher education, if only for their raw transformational power.

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To those of us who, for the past eight years or so, have watched and pushed along the development of assessment with similar hopes of achieving real change, the dynamic is familiar. A novel set of reform-oriented concepts suddenly, against all expectations, takes off as a high visibility topic of discussion; at the same time, it engenders profound intellectual discomfort. Like assessment in its early years, many of the acrimonious debates about the merits of Total Quality occur among people who in fact know very little about it. And like assessment in its early days, the claims of both proponents and critics appear overblown.

Strikingly similar, too, are the attempts to limit domain. The commonly heard canard that Total Quality is "all right when applied to the administrative side of the house but it's inappropriate for instruction," for instance, echoes earlier assertions that while assessment techniques might fruitfully be applied to basic skills or professional study, they could hardly be used to examine the ineffable outcomes of traditional academic disciplines.

Equally familiar is the mad scramble to get started. Exponential growth occurred each year in the proportion of institutions reporting assessment activities on ACE's Campus Trends survey (a proportion that topped 90 percent two years ago). The same appears to be happening now for claims of TQM efforts; a recent *BusinessWeek* survey reported 61 percent of college presidents averring involvement in Total Quality—this compared with at best a dozen or so campus implementation efforts as recently as two years ago.

Both movements rest ultimately upon a similar image of knowledge-driven, continuous improvement. Unlike earlier management adventures such as MBO and Zero-Based Budgeting, which were *applied* to the academic enterprise, Total Quality—like assessment before it—demands fundamental change in academic *structures* and in the way the actual work is done.

But the two stories also show revealing differences. For one, the stimulus for involvement is different. Initial institutional reactions to assessment in the mid-'80s were decisively colored by the concept's early (and partly coincidental) linkage with the issue of public accountability. Assessment thus evoked the attention of institutions but, apart from a vague appreciation that something ought to be done to improve undergraduate teaching and learning, assessment *itself* did not appear to most campus parties as a needed response to a visible problem.

The problems Total Quality presumes to address, in contrast, are palpable and urgent. The soaring attendance at "quality" conferences in higher education last year was motivated less by a general desire to improve than by institutional need to cope with an increasingly desperate set of fiscal circumstances. Partly as a result—and this is a second important difference—institutional involvement with Total Quality has often been stimulated from the top. Assessment in its early years only rarely enjoyed the active sponsorship of presidents and provosts, but those are the very people championing the TQ movement. Similarly, the institutions first identified with assessment were widely recognized as innovative but were otherwise not well known. In contrast, the Total Quality movement counts in its front ranks a large proportion of universities standing high on the reputational pecking order.

The most important difference, though, is that the *reach* of TQ is from the outset more comprehensive. While only a few engaged in assessment really felt its hidden potential to radically transform teaching and learning, TQ's change agenda is up-front from the beginning. A major stumbling block to the effectiveness of assessment as actually implemented by most institutions, for instance, was the fact that the results of evidence-gathering often went nowhere because a structure of utilization was assumed, not created. But TQ claims to operate on all parts of the system simultaneously; in the compelling monosyllabic syntax of the Shewhart Cycle, "plan, do, check, act"—a scheme that not just welcomes but demands information about performance.

What should we make of these two stories? As historians habitually remind us, significant realignments require both new ideas and altered circumstances. For assessment, the ideas were surely there but too little in the structure of incentives facing institutions induced many of them to take new directions. Is the nascent "quality movement" in higher education fated to follow a similar path?

An adequate answer, I think, depends on our response to two related queries. First, are the times really different and if so, do they in fact require a new way of managing? Second, is the "it" of Total Quality really any different from the many ideas (including assessment) that have been advanced over the years to "fix" higher education—or indeed, from many of the academy's current practices, whatever they may be called? If the answer to both of these complex questions is "yes," Total Quality may indeed be the idea we've been waiting for.

Bad Times or Changing Times? Certainly there is little disagreement that colleges and universities face difficult times, perhaps the most difficult in five decades. But though everyone will agree that things are tough, not all concur that they are *different*. A great many academics believe that higher education's current fiscal woes, however deep, are temporary, and can be managed by the usual combination of judicious belt-tightening and vigorous budgetary lobbying until the inevitable recovery occurs.

At least on the public side of higher education finance, much of the evidence now suggests otherwise. First, we appear to be up against a fundamental structural condition. In growing numbers of states, 80–85 percent of the budget is now tied up in entitlements, court-ordered spending, and restrictions of one kind or another; in this context, higher education has become the "budget balancer"—the last-in-line piece of discretionary spending remaining after mandatory expenditures are accounted for. A second element of the problem is that taxpayers simply will not support further increases, however worthy the cause—a fact demonstrated convincingly by a series of bleak state electoral results last November. These conditions, together with more general trends in the economy, suggest strongly that higher education will need to do what it does for less for the foreseeable future.

The logical cutback strategy of doing *less* by limiting access is increasingly un-

Why, Jimmy, Why?

Jimmy had never been a great student, but he did try. He usually got C's, sometimes a B, and occasionally a D. Still, as he looked down at the grades he'd just received for the last semester, he was shocked—one C and the two F's. "What do I do now?" he asked himself.

He had loans and grants. They wouldn't pay for F's and he had no money himself. He would have to take some time off, drop out, and hope that he could come back in a few semesters. He looked again at the grade card. Two F's?

Why?

He knew why. Because he didn't have time to study. He was working four nights a week at a local motel and waiting tables on the weekends. Every extra moment he spent studying. He was bleary-eyed most of the time. Exhausted.

Why?

Because his school workload this semester was much tougher than before. The one class was pretty much what he had expected. But the other two had overwhelmed him. They were both courses in his major. Unfortunately, he wasn't prepared for either of them. From the very beginning the professors were discussing things that had not been covered in the prerequisite courses the semester before. Jimmy found himself doing extra reading, asking other students for help, or just trying to figure stuff out for himself. He just wasn't prepared.

Why?

Because the professors of those prerequisite courses were recently hired part-timers. They had been given a time slot, a classroom, a textbook—and a hardy "welcome aboard." That was it. They worked hard to develop a syllabus that covered the textbook and allowed them to discuss issues that they, through their own work experiences, felt were important. Unfortunately none of their quick-study preparation involved meeting with other professors. The part-timers didn't know what the teachers of the next-in-line courses expected their students to know.

Why?

Because the department didn't have an orientation session for new hires. The part-timers were never acquainted with the curriculum or program objectives or the mission of the department. They didn't know where they fit in.

Because policy did not allow part-timers to attend department meetings. That was just for the professors.

Because the part-timers taught mostly night classes and the professors mostly day. There wasn't even much of a chance that they would bump into each other in the hallway.

Sometimes a single "why" is not enough to really explain things. One "why" suggests that Jimmy failed, two and three "whys" suggest that the teachers failed. Four "whys" make it clear that the system failed them all. ☐

TQM ON CAMPUS

QUALITY QUESTIONS

- *When we have a problem, what do we often think of first? Solutions? What might be more useful?*
- *What problems are you facing?*
- *What do you really know about the situation? Hunches or facts? What are the root causes?*
- *You may want to ask "why" several times until you get deep into the problem.*

Source: Daniel Seymour, *Once Upon a Campus: Stories about Quality Concepts in Higher Education* (Palm Springs, CA: Avalon Press), 1993.

available. It rarely goes unnoticed in hard-hit states like California, for example, that attempts to reduce access in the name of financial exigency occur at precisely the time that large numbers of minorities are poised to enter higher education. Politicians have been unusually sensitive to the charge that "efficiency" or "belt-tightening" achieved this way is merely another name for discrimination.

Some people in public higher education maintain that while these fiscal conditions are real and permanent, they do not in fact require massive changes in the ways colleges and universities do business. Under their scenario, expected funding shortfalls can be made up for on the revenue side by shifting costs to students and by developing more vigorous alternative fundraising approaches. Inevitable threats to access can be addressed by funding protected classes of potential students directly—the so-called "high tuition/high aid" strategy now being visibly pursued as a policy option by many states.

But the evidence is equally unkind to this alternative, at least in the long run. The "high aid" component of this strategy is subject to the same dynamics of state budgeting noted earlier; its "high tuition" component will rapidly make public institutions aware of what the privates have known for years—that consumer choice in higher education is increasingly unpredictable but ever more demanding. Pursuing such a policy may mean accepting major changes in what public higher education offers and how it delivers it.

This combination—structurally induced fiscal stringency in the face of an increasingly demanding customer—recalls vividly, of course, the operating environment of U.S. industry over the past decade. Fundamental to this milieu is a demand for *quality service* delivered at *reduced provider cost*—a linkage that, for higher education, has been virtually unimaginable. But it was just such a linkage that spawned industry's widespread engagement with Total Quality, less out of complete conviction than through a growing awareness that traditional alternatives would forever remain inadequate. Budget shortfalls in the 15-to-20-percent magnitude were the minimum required to get industry's attention in the '80s; we have them now and they will be increasingly hard to ignore.

New Ideas or Just New Words? Closely following the typical academic's initial rejection of TQ's language is a second-glance flash of recognition: when suitably translated, most of these things we appear to do already. If the first reaction moves us to righteousness, the second induces smugness; the rest of the world, after all, is only just now catching up. Smugness or no, there is more than a little truth to this contention. Many of the core ideas of Total Quality do have compelling academic counterparts. But things are also not that simple, as even a brief analysis of some of TQ's ideas will attest. Consider, for instance, how some of these ideas fare when viewed in the context of traditional academic culture.

- *Decentralized Management and Empowerment.* Perhaps the most visible aspect of Total Quality is its call for a new kind of management. Instead of relying on traditional hierarchical structures that optimize regularity and control, TQ's philosophy emphasizes management's roles in setting broad direction and facilitating processes while decentralizing operational decisions to the level at which the work is done. Ideal managers become "coaches"—able to motivate concerted action by communicating the big picture while at the same time creating an atmosphere of openness that legitimizes new ideas and allows the creativity of all to come forward.

One of the appeals of this "new" philosophy to the academy, quite naturally, is that it appears on the surface to be quite close to what we do already. Participatory management is obligatory in academic settings, and faculty constitute what is arguably the most "empowered" workforce on earth.

But surface parallels can be deceiving. The "empowerment" of Total Quality is not about individuals but about *work teams* who for the most part are directly engaged in production—the people who cooperatively make a particular product or who own a specific process. Decentralized decision making in this context is not driven by any notions of right or entitlement but by the eminently practical insight that team members are the people who know best what's wrong and who should have the ability to fix it. With this conceptual grounding, TQ's seeming affirmation of traditional notions of individual faculty autonomy begins rapidly to fade.

How well does a focus on "teams" fit our own principal unit of academic organization, the disciplinary department? For some things, quite well. Departments do often function as work teams, and are given broad latitude to do so when it comes to such activities as the "production" of disciplinary majors or graduate degrees. With respect to research, though, despite a vague community of interest, they function more as administrative conveniences or holding companies. And with respect to such cross-cutting functions as undergraduate general education, they function politically, or not at all.

Hence the role of management. Beyond creating broad organizational vision, management explicitly comes into play in TQM organizations when an individual work team either lacks the resources to address on its own a local problem or, more significantly, when its process bumps into the interests and operations of another work team with a different agenda and mode of operation. In the latter case, a "cross-functional team" is created with authority to address the mutual problem.

At first glance again, this looks a lot like the way we handle topics like general education. But is it really? One major difference is that TQ's "cross-functional work teams" never stray far from the operational level; unlike the rotating, generalist committees that nominally preside over collegiate functions, TQ teams are built around collaborative responsibility-taking among the doers of a function.

Another difference with teams is that they typically begin with data. Rather than conceptualizing general education from first principles and negotiating its consequences, as faculty committees are likely to do, they begin with a particular *empirical* problem and trace its implications upward through the system. Such an approach to general education, again, might start deep inside the curriculum with an analysis of how specific prerequisite skills are built, and how they do or do not transfer effectively into the contexts where they are later required. And it might rest heavily on a prior look at actual course-taking behavior and student performance.

In short, for Total Quality, organization follows processes and exists to serve them. Empowerment, though a basic value, is a means, not an end.

- *Focus on Core Processes.* As this discussion suggests, the "process" is TQ's basic unit of the analysis. And many have seen in this an apparent reversal of assessment's prior focus on outcomes —a perception reinforced by Total Quality's vocal rejection of an "inspection" route to quality assurance. Yet Total Quality depends critically upon a knowledge of outcomes, whether at the end—the resulting market reaction and customer satisfaction—or on the "shop floor," where results are continuously monitored by workers themselves at every step. Assessment occurs at all levels but is rooted in actual processes, for only there can you realize what's needed for better outcomes.

What exactly is a process? Consistent with TQ's industrial origins, its basic model is a production line consisting, in essence, of an ordered sequence of defined operations resulting in a specified product or service; critical features of a process are that it is replicable and can be documented. If it cannot be *described*, it by definition cannot be improved; hence a major preoccupation of TQ practitioners lies in identifying core processes and determining exactly how they work.

This notion of process surely fits many administrative operations in colleges and universities. The interesting question is whether the notion can help improve our central business of teaching and learning. Though loosely intended as "learning plans," most curricula are not really specified as such. Few, in fact, meet TQ's critical test of a process: the ability to flow-chart key events by noting the specific points in required course sequences at which particular skills will be acquired and reinforced. But the analogy is intriguing, and a number of campuses have found such attempts at "mapping" worth the effort—especially when they uncover places where presumed connections among courses are not happening as intended. Given typical curricular organizations in which faculty are dispersed across discrete classrooms with little incentive to cooperate, such an exercise at least provides a way to start conversations about improvement.

- *Continuous Improvement.* Arguably, a belief in "continuous improvement" lies at the core of all scholarship. And indeed, organized research practice in major university settings—especially in

220 Sullivan Hall

Rhonda loved her work in the grants and contracts office. It was exciting, challenging, and rewarding. As an administrator she worked with professors throughout the university in developing proposals—from a $2 million grant for AIDS research to $5,000 for studying the costs and benefits of debeeking poultry chickens.

But today, Thursday, it was anything but exciting. Instead, it was draining and debilitating. She had been working with Professor Joseph DiBello for the last six months on a major grant proposal for the National Cancer Institute. Professor DiBello, a cytopathologist, was the principal investigator, but there were five other professors intimately involved in the research study from three other departments. The research methodology was extremely complex and it had taken them two months just to work through the details of the final draft.

The problem was the deadline: it was Friday.

In spite of working almost around the clock for three weeks, it had come down to the last few days. On Tuesday morning Rhonda ran a quick mental inventory of the people who had to approve the proposal. There were the four department chairs and two deans. There were also the vice presidents: her boss (the vice president for research and graduate studies), the vice president for academic affairs, and finally, the vice president for administration.

Nine signatures.

Campus mail was completely out of the question. It would take three weeks. The pony express could do better.

There was a work study student in the office on Tuesday, so Rhonda sent him on a mission: track down the department chairs and get signatures. On Wednesday another work study student had gotten one dean's signature, the other dean insisted on taking the materials home with him on Wednesday night.

Rhonda made it a point to come in early on Thursday and met the dean before he went into a meeting. That left the vice presidents. She got her boss's signature before 10 a.m., then swung by the vice president for academic affairs' office just before lunch.

There was only one stop left—220 Sullivan Hall. The vice president for administation's office.

TQM
ON
CAMPUS

QUALITY
QUESTIONS

Esther had worked in the housing office for 15 years. When she had started, there were only three dormitories. Now there were six. They began working on the final one in January of this year.

The contractor had assured everyone that the dorm would be ready in July. Well, here it was September—one week before freshman and new student orientation—and there were still dozens of details needing attention. In some cases doors still needed to be hung and in others touch-up paint was needed.

For Esther, though, the biggest problem was the keys. Last week the contractor had dropped off the room keys—four sets for 85 rooms. She had called up university stores to get another key rack but had been told they were out of stock. That meant she would have to requisition one from a local office supply warehouse.

The real problem, unfortunately, wasn't the requisition, it was the cost—$27. Everything over $25 had to go through the requisition process, and that meant five signatures and probably two weeks' worth of time.

She didn't have two weeks.

So Esther did the only thing she could do—"walk it around." She managed to get three signatures quickly. But the last one had been a problem: the person had been in marathon meetings.

Now there was just one more stop—220 Sullivan Hall.

Jody came back from lunch a little after 1 p.m. She turned the corner to walk into her office and bumped into a tired-looking Rhonda, the woman who worked in Grants and Contracts. In addition to Rhonda, there were three other people. She recognized one—Esther from housing—in the hallway. Esther and one of the women were seated in chairs, the others stood.

As Jody pushed open the door labeled "220," she knew exactly what to expect—people seated in the two chairs inside the office.

It had really become a problem. All these people trying to "beat the system" by walking around papers and reqs to be signed. Her boss, Kathy Jurasky, hated a cluttered office area and had mentioned it to her on two or three occasions during the last few weeks.

Jody decided to take action. On a notepad she scribbled a reminder to herself to order two more chairs for the hallway. That should just about do it. □

- *How and why do systems and processes become more complex over time?*
- *What are the costs of complexity in terms of efficiency? What about the human costs?*
- *Do you have processes that can be simplified and streamlined?*
- *How can you identify them?*

Source: Daniel Seymour, *Once Upon a Campus: Stories about Quality Concepts in Higher Education* (Palm Springs, CA: Avalon Press), 1993.

"big science"—seems at first glance to embody fully the pattern of ongoing critique and resulting refinement that TQ proponents call for. It often proves useful as a point of departure for faculty conversation to point out explicitly that TQ's core philosophy (like assessment's), in essence, is the principles of academic inquiry applied to ourselves and what we do.

But it is hardly research that needs fixing. Our central preoccupation with quality has instead been in undergraduate education, where the established core values appear quite different. Despite the occasional ripples of the "content of the canon" debate, these values remain for most faculty essentially, and often deliberately, conservative. For better or worse, instruction at the undergraduate level is viewed by most as the transmission of a delimited domain, whether this be conceived straightforwardly as a body of knowledge, or as has become more lately fashionable, as a set of outcomes to be achieved. Ironically, in fact, assessment may have helped to reinforce this conservatism by reifying the notion that teaching and learning should be viewed from the perspective of a fixed set of instructional goals rather than, as was the movement's original intent, inducing ongoing examination of both goals and practices in the light of obtained results.

Applied to undergraduate education, therefore, TQ's notion of "continuous improvement" can help open the door not only to an investigation of potential changes in instructional technique in pursuit of fixed outcomes, but also to the question of exactly *what* those outcomes should be. But while questioning of this kind is surely healthy—and is not entirely unknown to us—TQ provides a very definite picture of what "improvement" ought to look like: "quality is conformance to requirements." In this context, "conformance" means reduction in variation, while "requirements," of course, are principally shaped by customers. Both of these concepts have interesting academic implications.

- *Reducing Variation.* Often overshadowed by the more popular "empowerment" dimensions of Total Quality is its original grounding in the technology of statistical quality control. An important root concept here—and the principal object of this technology—is the distinction between "special" and "common" causes of variation. For proponents of Total Quality, processes are "in control" when outcome variations occur within pre-specified statistical limits, and a primary objective is to bring such systems in control through the gradual elimination of myriad "special causes" that are largely unrelated to one another. Until this occurs, improvement of the underlying process itself is impossible, because we are unable to determine systematically what is wrong.

This is a powerful insight, but in the context of improving teaching and learning, where exactly does it belong? Consider, for instance, the way we typically assign grades. Most current grading practices rest in essence upon the variation within a given non-random body of students around its own mean of performance. Instructors unconsciously reinforce the assignment of such variation *to "special causes" outside the process* of instruction itself. The ascribed special causes tend to be attributed to the student in the form of presumed variations in ability, motivation, and effort. Examination of the resulting grading pattern may tell us something about individual students— as indeed, it was designed to do—but it is virtually useless for informing the instructional process.

> AT FEW POINTS DOES TQ CONVERSATION BECOME SO HEATED AS AROUND THE WORD "CUSTOMER."

Together with a more general view of the negative consequences of evaluating individual performance, this is a reason why Deming, for one, would have us eliminate grading entirely. It is also a major reason why assessment arose initially—because current academic evaluation practices provided no good way to obtain needed data for the improvement of group performance. Criterion-based assessment schemes like those proposed by assessment are of value precisely because they *can* be used to identify and address common causes of variation.

But is reduced variation really what we want? In the development of a wide variety of basic, prerequisite, or professional skills, the answer surely is "yes": we want *all* students to learn fully what needs to be learned. But in the realm of higher-order thinking and the traditional domains of liberal education—where the development of individual voice and style becomes a paramount value—the answer is far from clear. What is important is to sort out these issues from the beginning, *before* we automatically attempt to apply TQ technology.

- *Serving Customers.* At few points in the Total Quality conversation does discussion become so heated as around the word "customer." Partly, of course, this is because the term itself vividly signals TQ's commercial origins. More subtly, it is because knowledge "in service" to anyone—whatever their label—directly threatens the academy's core myth of independent inquiry, conducted on its own terms and for its own sake. Particularly when applied to instruction, the term also suggests a surrender of expertise and authority by those assumed to have both, to parties who by definition are unaware of what they do not know.

As the latter point suggests, it is when the term "customer" gets applied to students that things get sticky. In some cases, certainly, the label applies perfectly. Students are the direct customers of such campus services as parking, food services, registration, or the library. As consumers with particular wants and means, they (and their parents) also make the initial "purchase decision" about which college to attend or whether to attend at all, and they will continue to make such choices as long as they are enrolled. In both these areas, TQ logic seems to fit, and its admonition to know and meet customer needs is good advice. In cases where the student "customer" may be badly informed about what he or she actually needs and how best to get it, such TQ notions as "leading" or "delighting" the customer can come into play—the objective being less to react blindly to customer demands than to *shape* or *anticipate* them.

But once inside instruction, the "customer" label no longer fits. From the perspective of traditional instruction, the student then becomes the "raw material" of a specified process of production (a point that recalls the earlier "value-added" metaphor of assessment). In cases such as basic skills instruction or technical training where the "raw material" analogy does apply, TQ practices such as mapping the process, determining its connections and how they fail, and bringing it into control make considerable sense. And because a college can apply TQ concepts in the presence of what production engineers term an "intelligent product"—one able to provide us with ongoing data about its own condition while remaining a part of the process— these techniques can in fact work even better for us than in industry.

An obvious application of this logic is classroom research.

In most instructional settings, however, students are more than just raw materials. Cooperative learning settings, active learning strategies, and independent work outside the classroom render them a part of the "workforce" as well, "constructors" of their own knowledge who participate decisively in the "management" of their own learning. Though advised by college personnel, they typically make most of their own curricular choices and remain free to allocate their own time and level of engagement.

So what exactly is a student from the Total Quality perspective? On the one hand, lack of a straightforward answer suggests that TQ concepts don't fit well. More compellingly, it suggests that any "answer" depends upon the particular student role and piece of the process that we are talking about.

If students are not in all cases "customers," then who are our customers? Again the answers depend upon the level at which the question is posed. At the highest level, for public institutions especially, one viable answer is society itself. More particularly, it is the taxpayers who pay the bills and who increasingly expect a demonstrable return on their investment. Much of the escalating accountability debate in higher education can usefully be seen in this light. Arguably, our accountability agenda might be better served by a proactive perspective on our part that consciously recognizes society's rights as a customer.

Internally, at the operational level, our customers are one another—whether exchange occurs among entire institutions, as in the case of articulation and transfer, among academic units within institutions, as in the case of service course instruction and prerequisite policies, or among individual faculty as teaching colleagues. Indeed, it is often surprising when talking with faculty how quickly brick-wall resistance to the term "customer" evaporates when the term is applied not to students, to potential employers, or to society in general, but to themselves and one another in a network of customer-supplier relationships across a curriculum.

As these brief musings may suggest, a number of core elements in TQ practice indeed have echoes in things we do. But by celebrating these echoes too loudly, or by picking and choosing among them, we run the risk of unknowingly making of Total Quality something that it is not. Evidence of this kind of transmutation is visible in some specific syndromes of early implementation that I've recently observed, and that can put the institutions that exhibit them badly off track.

One is a "Planning as Usual" syndrome that confuses Total Quality with old-fashioned linear goal-setting and strategic planning. Though this approach effectively picks up TQ's emphasis on strong leadership and the creation of organizational vision, it fails to appreciate TQ's essential link with operational processes and the empowerment of work teams that own them. The danger here is familiar: effective things happen in the short term through the constant intervention of committed dynamic leadership, but TQ's critical "infrastructure" of cross-functional teams never gets created at the level where the work gets done. The result is also familiar: institutional "planning" at the top never connects to the dozens of operational decisions made daily across campus.

A second trap is what might be called the "Touchy-Feely Ownership Syndrome." Here TQ's insistence upon decentralization and empowerment is confused with sixties-style participatory management—using such mechanisms as Quality Circles, T-Groups, and the like to directly foster a sense of organizational membership and empowerment. The difficulty here is a failure to recognize that TQ's notion of empowerment is intended less to serve the worker than the process—and its customers. As a result, institutions pursuing this path fail to connect these attempts to create organizational loyalty to the bottom line of actually *acting on* data or suggestions for change. We've seen this syndrome before in things such as program review: people feel good about the process for a while, but soon cease to invest their time when it fails to deliver.

A third difficulty can be labelled the "MBO Syndrome": an institution adopts Total Quality's statistical tools whole hog, but falls into the trap of using them to create fixed targets of performance. Techniques such as "benchmarking"—intended to guide continuous improvement—are instead rolled out as high-stakes, hard-point objectives against which unit and individual performance will be judged. The result is a predictable return to control-oriented management, countered by statistical gamesmanship on the part of those assigned to attain such targets. Instead, TQ proponents remind us that statistical variation is natural and that individuals cannot be held responsible and sanctioned for things over which they have no control.

A final trap is the "Pleasing the Customer Syndrome," which fabricates a strict constructionist version of TQ's core injunction about customer service and applies it directly to students. The result is a narrowly reactive approach where the recognized bottom line is immediate student satisfaction or, as one horrified faculty member recently put it, "where the inmates are running the asylum." While we surely do need improvements in service to students, this approach neglects the key TQ concept of actively shaping customer reaction by anticipating and exceeding current requirements. It also fails to recognize and develop the multiple roles of students in the learning process as a guide to improvement.

Each of these scenarios suggests the folly of direct translation and fragmentary application. The key to avoiding them, of course, is to recognize that Total Quality is *total*—its pieces must fit together. Many of the pieces *are* familiar; the "total" is what's new.

Making such varied pieces in fact fit together as part of a transformed philosophy of practice and a new organizational vision is something that will not come easily to the academy. If we are serious, we can neither adapt TQ practices piecemeal nor import them wholesale from others. As every industry has learned before us, the challenge will be to grow our own version of quality management—a task that involves a far more comprehensive process of conceptual development than has up to now marked our engagement.

But *are* we serious? Certainly the stimulus for change is present, and Total Quality ideas seem rich in potential insight. But an uncertain track record with innovation in the past makes it far too early for us to declare *this* one, at last, to be *the* one. □

JOB ONE

Reformers hope that Total Quality Management will do for American education what it did for postwar Japan.

When Steve Iachini speaks about W. Edwards Deming, his voice takes on the slight tremor of the initiate. But it hasn't always been that way. When Iachini, assistant superintendent for accountability in the Pinellas County (Fla.) School District, first heard about Deming through a seminar, his reaction was anything but positive.

"I remember sitting there feeling defensive at what was being presented," he recalls. "I felt that it contradicted everything that I had done for the past 20 years as a manager, that I had treated people badly, that I didn't take into account their needs."

The 92-year-old Deming has a habit of making administrators feel uncomfortable. Merit pay: Malarkey, he scolds. Student grades and the ranking of schools by test scores: Disastrous. Teacher evaluations: Eliminate them.

Instead, what Deming and his fellow management gurus preach is an approach to transforming large, complex organizations known as Total Quality Management. Initially viewed as a way to make big businesses more productive and efficient, in the last decade TQM has been sold as a generic approach that can work for any large-scale organization -- including school districts.

BY LYNN OLSON

Although experts on "quality" differ on specifics, they all embrace a set of core values. These include a strong focus on customer satisfaction and doing things right the first time, executive-level leadership, and greater investments in employee education and training. In quality companies, empowered workers made decisions based on data that help promote "continuous improvements" in products and services.

Now, the holistic approach that has already surged through U. S. manufacturing and industry, government agencies, and health care providers is finding its way into the schools. Last year, the American Association of School Administrators created a Total Quality Network, which has attracted more than 300 paying members who sign up to receive a newsletter, attend seminars and workshops, and get discounts on Deming videotapes. The National Alliance of Business has launched a project to help apply TQM to schools. And scores of school districts are either trying to implement quality techniques or are considering doing so.

With nearly 96,000 students, Pinellas County is one of the largest districts to jump into the quality movement. Over the next few years, officials in this balmy Gulf Coast community that includes the city of St. Petersburg have made a commitment to integrate quality principles into all aspects of their school system: from how students are taught to the delivery of maintenance services. Rather than dealing with pieces of the puzzle -- like how to reform the curriculum or downsize the central office -- TQM focuses on systemic change.

Iachini has gone from a skeptic to spending much of his time trying to sell others on this comprehensive approach. "What we're looking for is the buy-in," says Judith Westfall, associate superintendent for curriculum and instruction.

In Pinellas -- as elsewhere -- Deming and quality management have become virtually synonymous.

Although advocates of quality schools include such prominent management consultants as Joseph Juran and Philip Crosby, no one is better known than Deming. It was primarily Deming who taught quality management to the Japanese at the end of World War II. And it is Deming who is widely credited with the turnaround in Japanese industry that so many Americans now wish to emulate. "Deming's philosophy is like a religion," says Lewis Rhodes, associate executive director of the AASA, "because it's based on a belief system."

At the heart of the system is a theory called "statistical control." According to Deming, any process is subject to random variation that leads to waste, errors, and faulty products. Statistical control helps determine the reasonable limits of such variation, so that employees know when and where to intervene to make a process better. Although Deming maintains that zero defects are impossible, narrowing the range of variation will lead to improvements in the quality of products and services.

The theory of statistical control was developed by an American named Walter Shewhart and used widely in this country during World War II. But it was abandoned soon after as too costly and time consuming. Under Deming's tutelage, however, the Japanese adopted methods of statistical control with a passion. And Deming developed a holistic philosophy for managing change that, while rooted in statistical techniques and theories, goes far beyond that base.

Deming hardly looks like the savior of modern industry. An elderly man with a wattle like a turkey's, his blunt criticisms of management have often caused corporate executives to storm from the room during his talks. At a recent workshop sponsored by the AASA in Alexandria, Va., and attended by Iachini, Deming told his audience: "Evaluation today isn't worth a hoot."

But when asked how he would instill public confidence in the schools without evaluations or measurement, he shot back: "I don't know. I'm not a public opinion expert or in public relations." Despite such confrontations, his humanistic philosophy reverberates for many educators.

Deming starts from the belief that all people naturally want to do well at their jobs, contribute, and experience "pride and joy" in their work. The fault lies not with workers, but the system. Deming estimates that workers are responsible for only 15 percent of an organization's problems, the system for the other 85 percent.

It is management's responsibility to institute a quality system; as Deming likes to say, "Quality cannot be delegated." But it is workers -- working in conjunction with management -- who are the best source of ideas and suggestions for how to improve the processes in which they are engaged.

To equip them for this task, TQM emphasizes employee training in a wide range of statistical techniques and decisionmaking tools. It functions largely through the use of decisionmaking teams that represent everyone affected by a particular process -- ranging from the suppliers of the raw materials, to the supervisors, the workers on the line, and the product's recipients.

In contrast, practices that create barriers and competition between one part of the system and another -- or between people -- are rejected by Deming. Ranking people, grades in school, pay for performance, exhortations, and slogans are counterproductive, he argues. Such practices instill fear in individuals that prevents them from doing their best work. And they encourage fudged numbers and short cuts rather than bona fide improvements.

To Beth Ziecheck, a 1st grade teacher at Ozona Elementary School in Pinellas County, TQM promises a more cooperative, less adversarial approach to bringing about change in schools. "This is a community of learners," she remembers thinking, on first reading about Deming's ideas. "This is building respect for individuals, building trust."

For her administrative colleagues, TQM represents a rational, coherent way of dealing with the changes brought about by school-based decisionmaking. Pinellas began moving toward decentralized school governance in the 1980s. It also created an extensive system of magnet schools and became a demonstration site for the National Education Association's Learning Laboratories initiative. But when the state mandated last year that all schools shift to school-based management by 1993-94 -- including substantial parental involvement -- Pinellas officials knew they had to do something to ward off chaos.

Pinellas is the seventh largest school system in Florida. It takes more than an hour to drive from one end of the 389-square-mile district to the other, winding over causeways and down streets whose names change with every curve. The sprawling county spans 24 municipalities, 125 schools, 14,000 employees, and students from a wide range of racial, ethnic, and economic backgrounds.

"Our teachers and our community want to be empowered to be able to make more decisions," says J. Howard Hinesley, the district's superintendent. "But in a system our size, how do you meet that challenge?"

The answer, they decided, was TQM: an approach that would encourage schools to make decisions based on data, force everyone to focus more on customer needs, and help create a tighter link between one part of the system and another.

Perhaps the most prominent feature of quality organizations is that they are "customer driven." Their goal is to stay in business by meeting -- or even exceeding -- customer demands and anticipating what customers will want in the future.

But an organization's "customers" are not limited to people outside the school system. They also include "internal customers" -- or anyone inside the system who relies on another part of the system to do his or her job well. For schools, the most obvious "external customers" include businesses and institutions of higher education, parents, and other taxpayers. Within the schools, students might be considered the "internal customers" of teachers; teachers, the customers of principals; high schools, the customers of middle schools; and so on.

Among the most common tools used by quality organizations are flow charts that spell out for the system as a whole -- or for any given process -- who the suppliers are, what the raw materials are, who the customers are, and what the product is. The effect of thinking through such relationships can be a more clearly defined mission for the schools and a greater understanding of how everyone contributes toward that goal.

Deming believes that grades, ranking people, and pay for performance instill fear that prevents individuals from doing their best; they encourage short cuts rather than bona fide improvements.

"It ties all of our departments into the process of understanding that what they do is important, and how well they do it has a direct impact on what happens in the school," says Edward Kelly, superintendent of Prince William County Public Schools, one of eight Virginia districts working with Xerox Corp. and the state department of education to implement a quality system. It also turns traditional, top-down management on its head, forcing superintendents to ask what principals need to do their job, principals to ask the same of teachers, and so forth.

Quality management "combines a theory of internal motivation with a system of decision-making that can be useful to both teachers and students," says Doug Tuthill, president of the Pinellas Classroom Teachers Association. "The goal is to create an educational environment that's going to best enable us to prepare children for a 21st-century economy and society. We think that the learning environment that we're creating will also be the work environment of the future."

By looking on students as customers -- or as workers who are engaged in a quality process -- educators like Tuthill say they have been forced to re-examine the integrity of the work they ask students to do.

"What a school should teach," Deming says, "is a yearning for learning. We've been successful in crushing out the yearning for learning, intrinsic motivation, self-esteem, dignity -- exactly what we need."

In places that are applying TQM, students are taught to evaluate both the quality of the schoolwork they are asked to do and the quality of their own performance. One such place is Mount Edgecumbe High School in Sitka, Alaska. Mount Edgecumbe is widely viewed as one of the educational leaders of TQM, having applied quality techniques since 1988.

In one instance, students at the school used statistical techniques to discover how teachers spent their time. They found that most of it was spent lecturing, even though teachers thought they were promoting active learning. The data prompted teachers to lecture less and to use more hands-on experiences. Classes were also rescheduled from seven 50-minute periods to four 90-minute periods to provide more time for experiential learning.

Students, faculty members, and the administration have also worked to develop a consensus about the purposes of the school. And students help set priorities for purchasing supplies and equipment. Some faculty members remain ambivalent about quality management. "(But) I'll tell you what," says Superintendent Larrae Rocheleau, "we have pretty near 100 percent buy-in from the kids."

Although students from the small, state-run boarding school come from rural areas and belong to minority groups, a follow-up study of its graduates found that 47 percent had either completed a postsecondary program or were still enrolled in one. Their unemployment rate was only 2 percent, in a region where the average unemployment rate for that age group is 20 percent.

But the small size of Mount Edgecumbe -- it has only 215 students -- and its status as a public boarding school make it a hard example to emulate. If a large, urban district the size of Pinellas can make TQM work, the lesson will be more compelling.

Like many districts that have ventured into the quality arena, Pinellas first heard about TQM from an outsider. In the summer of 1991, John Mitcham, chief executive officer of AT&T Paradyne, invited Hinesley and a management team, consisting of his chief cabinet officers and Tuthill of the teachers' union, to come to corporate headquarters for a two-day training session.

"We went there fat, dumb, and happy," recalls James Shipley Jr., associate superintendent in the division of planning and management information services. They left, if not apostles, at least novitiates.

Since September, a design team of union, school district, and business representatives has spent hundreds of hours fleshing out a plan for "Total Quality Schools." One goal, they acknowledge, is to win funding from the New American Schools Development Corp. -- the private, non-profit entity established by American business people last summer, at the urging of President Bush, to provide up to $200 million for a massive research-and-development effort.

But even without that money, Pinellas officials have pledged to go forward with what they view as a way to make their district more responsive and efficient.

Last fall, school officials created a District Quality Council -- consisting of the superintendent, the associate superintendent, two deputy superintendents, the president of the parent-teachers association, and the executive director and president of the teachers' union. The council will integrate existing components of the school system and help drive its quality initiative.

School officials also hope to establish a Community Quality Council, through which businesses, the public sector, and the schools can advance the quality agenda in the entire community. "Regardless of how far a school gets, if it's not supported by the rest of the system, the whole ecology falls apart," explains Shipley.

Two sites in the district have also been targeted to provide what Hinesley refers to as "hard copy" evidence that the school system is serious about quality:

- When Rawlings Elementary School opens next fall, its entire staff will be versed in quality management philosophy and techniques. The school will have total control over its budget. It also will serve as the test site for customer surveys and other quality tools, as the school needs them.
- Simultaneously, the district's central maintenance department is shifting to the use of quality management techniques and theories. Teams of mechanics, foremen, supervisors, and representatives from other departments are tackling such problems as cost overruns, delays in work orders, and glitches in procurement and inventory control that cause mechanics to spend days waiting for parts, instead of making repairs. Every foreman has also been asked to turn in a list of cost-saving ideas, which will be researched to determine whether they should be implemented and how. "Historically," says Charles Lambeth, director of maintenance, "we've made decisions based on some crisis situation. But it was not data-based, and it very often created a greater long-term problem..."

Outside of Pinellas, many of the attempts to integrate TQM into education have focused on areas like maintenance and custodial services, where the parallels to the corporate sector are most obvious. But the lessons that educators can learn from big business are limited. Corporate officials warn that few industries have applied Total Quality Management zealously enough to make much progress.

In 1990, the American Society for Quality Control teamed up with the Gallup Organization to survey 1,237 employees in both manufacturing and service industries. More than half of those who responded said their companies talked a good game, but only 36 percent said their employers backed up that promise with solid performance. And only a quarter said their companies really trusted employees to make good decisions about quality.

School districts like Pinellas are being bombarded with literature from quality management consultants, some of whom promise to fix their problems overnight. In contrast, most experienced chief executives describe quality management as a grueling, long-term effort.

According to Myron Tribus, an internationally known quality consultant, "there are no good educational resources out there." So educators must be cautious about how they adapt the concepts for themselves. "The school is not a factory," he says. "You can take over the fundamental ideas of quality management, but they must be changed rather dramatically."

TQM turns traditional, top-down management on its head: forcing superintendents to ask principals what they need to do their job, principals to ask the same of teachers, and so forth.

"Motorola does it differently than AT&T Paradyne," notes superintendent Hinesley of Pinellas County. "We will borrow anything anybody legitimately knows how to do. We'll take the best of all of it. But you can't take the total industrial model and apply it directly to education."

To help support Pinellas's quality initiative, the district is designing what it refers to as "just-in-time" training. Beginning this spring, every school will be assessed to determine the type and level of training it needs.

If the district receives funding from NASDC, trainers from Qualtech, a subsidiary of Florida Power and Light -- the first American company to win Japan's prestigious Deming Award -- will provide training in pilot schools. "The school district is also preparing its own cadre of principals, teachers, parents, and central office personnel to provide assistance to individual schools and school divisions. In addition, the division of curriculum and instruction is being reorganized to move "from the managers of the mandates to the facilitators of the change process in schools," Westfall says. Employees within the division -- including more than half of those affiliated with federal or state categorical programs -- have been paired with individual schools to serve as friendly critics and advisers. Eventually, the district would like to establish a "Quality Academy" within its professional development center that could become the focus for quality training communitywide.

How quickly Pinellas will be able to move without the NASDC money is uncertain. Donald McAdams, an adjunct consultant at the American Productivity and Quality Center in Houston, who has worked with the district, warns that "it is difficult -- I'd be inclined to say impossible -- to implement quality management in an organization without some consulting." But it's hard to find a quality consultant who will work for less than $1,000 a day, and the going rate is $1,500 to $2,000, a steep price for school districts strapped by the recession and state budget cuts.

For Pinellas, there could hardly be a less auspicious time to launch such a massive effort. The state is facing one of the worst financial crises in its history. In the past two years, the school district has cut $23 million from its budget. This winter, the district slashed another $32 million, cutting 914 positions in the process.

Like many of the corporations that embraced Total Quality Management during the 1980s, Pinellas has its back against the wall. "We don't want people to associate continuous quality improvement with layoffs and retrenchment," worries Tuthill. Initial plans to integrate quality management techniques into the collective bargaining process have been temporarily scrapped. And although labor and management say their relationship is the closest it has ever been, they are proceeding cautiously.

So far, the reaction from school people has been mixed. "We have a lot of people who are eager and interested," says Clide Cassity, director of the Pinellas Technical Education Center. "We have a lot of people who say it will disappear. And then we have a lot of people who just don't care."

The vocational education center has been working to implement total quality ideas on its own since July 1990. A Quality Research Team has spent the past six months purchasing books, videotapes, and other training materials that it can share with the rest of the staff. And a school improvement committee has used quality techniques to improve the efficiency of the program's registration practices and its food services operation.

The experience has turned around Philip Wey, an air conditioning instructor at the school and, as he puts it, "probably the most vocal union hothead that you can imagine." For the past five years, Wey had refused to serve on school committees because he was convinced they were "do-nothing, impotent." But, he adds, "the four committees I'm on now, they're all real powerful."

At a meeting at Gulfport Elementary School, however, teachers remain wary of the district's sincerity. "What do we do if three years down the road, it's a bomb?" asks one teacher.

Says Hinesley: "Some people are skeptical, and we've given them no reason not to be skeptical other than to hang with us."

Even among the district's converts, there is uncertainty and disagreement about exactly how far to go with Deming's philosophy. At a recent training session about TQM for school principals, Iachini told the audience: "There are a lot of problems with the evaluation process. I think I am supportive of getting rid of evaluations." But his supervisor, Shipley, quickly added: "Don't go out of here saying I said that."

Mary Catheryne Athanson, principal of Rawlings Elementary, next year's pilot school, was openly skeptical about doing away with grades, as Deming has advocated. "For this coming year," she says, "we will have grades, and we will have standardized tests."

For now, Pinellas officials are emphasizing the theoretical underpinnings of Deming's approach to quality management. "We're not going to beat them over the head with statistical tools," says Shipley. Sessions like the one for school principals tend to focus on Deming's 14 points for managing change and his overall philosophy.

But there is a growing recognition that quality management will require a much different use of data than the school system now practices. Mary Ann Sanchez, principal at Ozona Elementary School, a pale pink structure at the northern end of the county, says most of the school system's emphasis, to date, has been on end results. "Evaluate your teachers at the end of the year. Evaluate your students at the end of the year. Evaluate yourself at the end of the year," she states. "And it's not only evaluating people; it's evaluating goals.

"We looked at test data," she adds, "but the data we looked at was frequently too narrow. I think we need to look at a wider variety of data, but it's one of those areas I'm not sure of."

Observers caution that TQM is a generic process to help run any business. It can support good curricula, qualified teachers, and improved pedagogy, but it cannot substitute for them.

In corporations that have adopted quality techniques, like Toyota, individual employees, small teams, and larger groups routinely gather data and check and report on progress as measured against daily, weekly, and monthly objectives, notes a recent article in *The Executive Educator*. But unlike many school "outcomes," these goals and targets are often employee-determined, the article states. They represent what is most meaningful and motivating to those closest to the job. Instead of mandating goals, management makes sure the numbers, percentages, and data are routinely discussed -- and consistent with the corporation's broader aims.

In Pinellas, it is still too early to tell how such practices will translate to the schools. "I think that the statistical techniques are complex enough that many of the people at the school level are not going to want to be involved heavily with them," says Iachini, the assistant superintendent for accountability. Instead, he predicts that the focus of his own division will shift from program evaluation to technical assistance for individual schools.

"I think that we will abandon our traditional evaluation schedule," the administrator says, "that we will act as consultants to schools in developing school improvement plans, help them design studies to improve processes, and develop school-based data. I don't think that we're going to play that role for several years, but I think gradually we're migrating to that kind of responsibility for the department."

The district's decision to embrace Total Quality Management parallels a similar move at the state level. Gov. Lawton Chiles has directed the Florida department of administration to make training in Total Quality Management available to all state employees. And many of the ideas behind quality management -- such as its customer orientation and its focus on decentralized decisionmaking -- are reflected in the state's School Improvement and Educational Accountability Act.

In addition, as part of the state's School Year 2000 initiative, seven school districts are working with the state department of education and Florida State University to implement a quality system, based on international quality standards. Other state-sponsored initiatives are under way in Ohio and Virginia.

But some observers worry that TQM could become just another educational fad -- or that its merits could be oversold. David Osborne, co-author of *Reinventing Government: How the Entrepreneurial Spirit Is Transforming the Public Sector*, notes that TQM was developed within the competitive climate of the business community. In contrast, public schools are monopolies. TQM, he says, may not go far enough to address the status-quo nature of such public bureaucracies.

Others caution that TQM is a generic process to help run any business. It can support good curricula, qualified teachers, and improved pedagogy, but it cannot substitute for them. "If you just went out and did total quality, but you never looked at setting standards and new ways of assessing kids, if you never looked at looked at developing exciting curriculum or how to involve parents, you still wouldn't get there," says Norman Deets, a Xerox executive on loan to the National Center on Education and the Economy to help schools implement quality management. "But I think if you did those other things, and then did quality," he adds, "the sum of the whole would be greater."

For now, what Pinellas needs is time, argues Hinesley. "I think that's where we need to be on the defensive," he notes. "We're not working with widgets, and you've got to give us some time to make this happen."

Cautions Shipley: "TQM is not the end-all. It's the method by which we're going to approach rational decisionmaking. It will be the common language."

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Quality through Preventive Management

2 Ways

By Bill Borgers

to manage an organization, whether business, school, or state government: management by detection, and management through prevention.

Both kinds of management focus on the output of a system — the results or product — then set goals or standards to compare with the results. Problems arise not from the comparing of results with some target, but from what management does with the information. One problem faced by America's businesses, schools, and state governments is that management by detection is the prevalent method used. Managers who believe in management by detection use the results to exhort, cajole, and blame workers for the discrepancy. Management by detection uses averaging to show who is an above-average producer and who is below average; the above-average are rewarded while the below-average are punished.

Management by detection tends to produce small spurts of improvement followed by a leveling off as the incentives and punishments lose their effectiveness. Management responds by increasing the rewards and punishments to get another jump start. Over the long haul, however, this management style produces only "good enough" at best, and poor quality at worst. Under fear of punishment or going unrewarded, the workers do only well enough to be rewarded or avoid punishment. Fear reduces risk-taking and cooperation which are essential in improving the quality of a product. Worse still, workers will misrepresent the numbers in an effort to escape blame. Quick fixes are used to get the quick results demanded by management. If there is improvement, it is not significant, and more often the results are poor.

Management by detection needs mass-inspection methods such as mass-testing, extensive accreditation visits, and other costly accountability measures. By focusing only on results, the processes producing the defects continue, with the emphasis on rework and recycling as corrections rather than focusing on improving the process. It is a wasteful style of management that has caused America to fall below Japan, Germany, and other countries that have embraced a better system of managing people.

Management by detection relies on several faulty assumptions. First, people can be motivated by doing something to or for them. This theory gained popularity with Pavlov's dog salivating when the dinner bell rang. If Pavlov had had a cat, the theory would have been in trouble, as a cat chooses to eat only when good and ready. Along came B. F. Skinner and his rats-in-the-maze experiment. When Skinner's rat went down the wrong path, it received an electric shock; when it chose the right path, it received cheese as its reward. Today our businesses and schools are full of cheese and shocks to entice people to do quality work. What's missing from the process is the concept that people make their own choices according to what they believe is quality. People are motivated from within and will not produce quality unless it satisfies their needs. The manager who gives the workers meaning to their work, allows them to assess their own work for quality, and then joins with them to plan how to improve the work will achieve more quality than by using fear.

Another assumption of management by detection is that most defects are caused by the workers. In truth, at least 93 percent of defects are the responsibility of the management, not the worker. The manager controls the factors that can eliminate most defects. Management's responsibility is to organize the workforce to solve problems, and to model, facilitate, and coach workers in how to produce quality. Those closest to the problem have the best chance of solving it if given the needed information, authority, and training. The key is trust between management and the workers.

The final assumption in management by detection is that competition within the organization improves productivity. Competition works wonders in the world of sports, but it is badly misplaced when used as a motivation tool within an organization. Learning — whether it be in school or in the workplace — is not a game with winners and losers, and should never be represented as such. Competition prohibits cooperation between the schools, workers, and managers. Instead, management should emphasize teamwork as the best way to obtain quality.

Working Smarter Together

Gordon A. Donaldson, Jr.

Leading collaborative change in schools means helping staffs become more productive without substantially depleting their resources.

In *What's Worth Fighting For?* Michael Fullan and Andrew Hargreaves compellingly argue that working collectively in schools is the best way to improve them (1991). Yet throughout the book they weave cautions about the hazards of collective action. Faculties can develop groupthink. They can balkanize. They can stop at "contrived collegiality" and never arrive at true collaboration. Threatened principals can undermine efforts at working together.

The transition from traditional patterns of faculty problem solving and decision making to more collaborative ones is fraught with difficulties. As Fullan and Hargreaves note, "Building collaborative cultures involves a long developmental journey; there are no shortcuts." For the principal bent on supporting this type of restructuring, the challenge is to lead a faculty that may not wholly support, understand, or have the energy and time to navigate this fundamental change. Teachers and principals commonly compare their restructuring efforts to "rebuilding a 747 while it's in the air."

Principals, teachers, and other staff have responded to the criticisms of their schools by working longer and harder. They have added new programs and spent hours planning change. These efforts are well intentioned, but we are beginning to realize how little they are changing what teachers do daily, and thus what students learn (Toch 1991, Sizer 1992).

Working Smarter, Not Longer

Simply working longer and harder will not significantly change our performance; we must learn to work smarter. Peter Vaill persuasively argues that "working smarter" requires shifting our habits of work "collectively, reflectively, and spiritually" (1989). What does working smarter collectively look like in schools?

At first glance, it's easier to see what working smarter collectively should *not* be. It should not involve every teacher in more meetings that identify problems without showing promise of resolving some. It should not add more responsibilities onto teachers' already heavy workloads. It should not expect educators to instantly function as a team without the group skills to do so.

Working smarter means monitoring the efficiency of faculty work from two standpoints: (1) how productive it was in reaching desired student outcomes, and (2) how much it depleted important resources, including the human ones. The goal of working smarter is to be more productive without substantially depleting resources. That means devoting time

and energy, both individually and together, to activities that demonstrate true benefit to children *and* that do not threaten, over the short or long haul, to exhaust teachers, principals, children, parents, or physical resources.

Instrumental to "working smarter" is developing the ability to monitor what we do. We can only know if our efforts are wisely directed if we can step back and see what they produce and what they deplete. Every school staff must learn to reflect on its daily work in the light of student outcomes and its bank of resources. What came from that three-day unit on tropical rain forests? What time, energy, talents, and materials went into it? Was it worth it? What came from those workshops on cooperative learning? What went into them? Were they worth it?

Where We Are? Where We Are Going?

To help school staffs judge their new efforts and whether they are paying off, Figure 1 provides a five-stage model of the cycle of progress. Each stage is characterized by both "possibility" and "danger." The possibility is for potential growth and positive outcomes; the danger describes what can happen to the faculty if its new efforts come close to depleting its store of resources. Schools attempting to improve pass through these stages. Whether they emerge with gainful change depends on the staff's collective success at maximizing the possibilities while minimizing the dangers.

Stage 1: Criticism. Externally or internally expressed dissatisfaction with the school's performance launches a period of criticism. From every substantial criticism, the school staff can learn what may not be functioning well. The "possibility" is for staff to use the criticism to identify ways to improve performance. The "danger" is that the faculty will feel overwhelmed and unappreciated. For staff whose resources are nearly depleted, *defensiveness* can spread rapidly; blaming others both externally and internally seals off the criticism, the facts underlying it, and often the critics as well.

Stage 2: Self-examination. If criticism is faced and defensiveness held to a minimum, staff can objectively *examine the student outcomes* in question and how *its own practices* affect them. Teachers can collect and use evidence to pinpoint what is working and what is not.

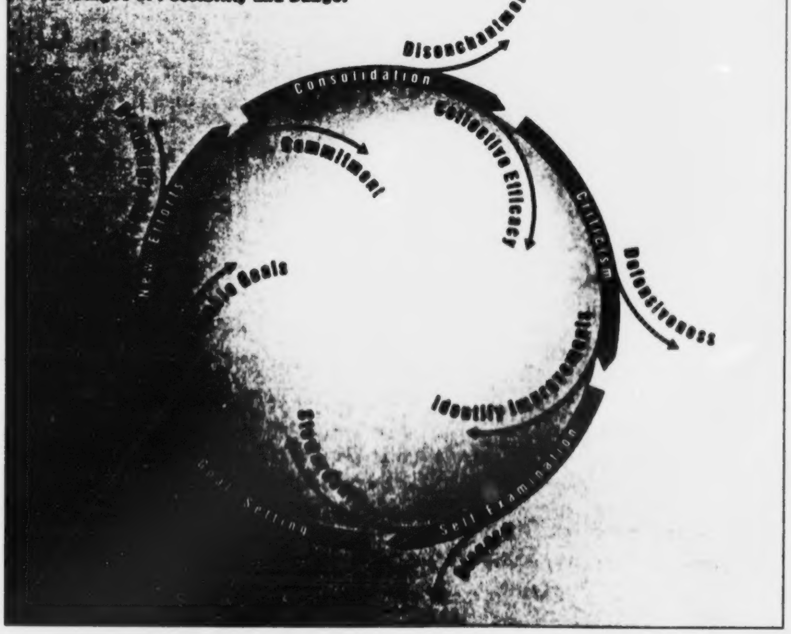
The danger in this stage is *discord.* The source of the problem could be identified as "the math department" or "the cross-age grouping team," and other staff members may disassociate themselves from those sources. This is particularly dangerous for a staff whose resources are "running on empty" already and who is consequently wary of sharing responsibility for all students.

Stage 3: Goal Setting. Once a staff succeeds at objectively appraising outcomes and practices without feeling overcome by discord, *collective goal setting* can occur. The data from Stage 2 can help identify specific goals, and the absence of discord enables everyone to support the proposed goals. Stage 2 data will also reveal staff successes that can be celebrated.

Figure 1

A School's Cycle of Progress

Five Stages of Possibility and Danger



That goals will be too grandiose or numerous to be achieved is this stage's danger. In this case, *defeatism* among the staff is practically inevitable. Working smarter in this stage means choosing goals that can be attained in a reasonable time frame with the resources available.

Stage 4: New Efforts. The school staff that emerges from Stage 3 with achievable goals will enter into *planning and implementing new efforts* without wondering, "oh, what's the use?" or feeling "here we go again!" To realize the possibilities of the new practice, however, requires that collective energies be focused on specifying that practice, the people responsible for it, the training they need, and the time required to plan and assess implementation. Most important, the entire staff needs to commit itself to helping it work, as any new practice will draw down resources and energy from the whole system's "bank."

The danger in this effort is that staff commitment will wane, leaving only a small group to effect the change; the collective effort will *disintegrate*. The effects of disintegration can be devastating as the staff divides itself between "true believers" and "foot draggers." Staff members take sides, and innovations become the target of arguments over resources.

Stage 5: Consolidation. New efforts backed by an "integrated" faculty and based on careful goal setting and honest assessment are most likely to succeed. With effective monitoring, the success or failure of the new practice becomes plain to all. Adjustments can be made, and its *consolidation* into the school's patterns realized. The entire staff needs to be privy to this monitoring, celebrating the successes and solving the difficulties that will accompany consolidation.

If some staff members are excluded, the school flirts with the danger of *disenchantment*. The collective "resource meter" begins reading "not worth the effort." Staff members dwell on the problems they or their colleagues experience, lose sight of the goals of the new practice, and grow impatient with the costs, disorder, and slow pace of change. Conversations in corridors and parking lots grow cynical, and staff members mutter about "what new idea we'll be forced to try next."

A staff that works smarter together can use this five-stage model to ask, "Where are we in this cycle now? Are we realizing the possibilities? Or are the dangers taking over?" The group needs to share evidence of positive developments to create the affirmative spirit needed to sustain progress. On the other hand, if the human resources are being depleted more rapidly than the possibilities promise to bring benefits, the staff will wisely heed the danger signals.

A school faculty that continuously monitors its own progress through collective reflection becomes self-aware, permitting course corrections before the five dangers or "Killer Ds" take over. Even if that course correction means abandoning a major effort, the faculty can make that decision with full recognition of the imbalance that exists between the potential for gain and the depletion of resources. This awareness keeps a school staff from feeling it's spinning its wheels or falling into the "we-tried-that-once-and-it-didn't-work" syndrome. In contrast, a staff beset by the "Killer Ds" is stuck in a cycle of hopelessness and routine work. Theirs is not a cycle of progress but an endless revolving around halfhearted attempts at change.

Staffs that are working smarter can adjust their plans, activities, and even their ambitions to see that progress occurs. As they live through the cycles of renewed effort, each cycle builds on the previous one, and a spiral of collective progress is born.

Redefining Staff and Leadership

Principals and teacher leaders play important roles in the development of faculties that work smarter together. They act very different, however, from the "strong leaders" of the Effective Schools era. A strong leader who is in control, who must direct traffic at all the crossroads of decisions, has no place in a school where all adults share responsibility in these areas (National LEADership Network 1991).

School staffs that seek creative solutions, that feel stewardship for the institution, and that shoulder a share of the toughest decisions facing the school will constantly chafe under the limits of leaders who must control, direct, and ultimately decide. Such leaders, however well intentioned, will soon be driven beyond their own human limits by their desire to support and monitor their staffs. Eventually they will sanction only those activities that will not deplete *their* personal and professional resources (Donaldson 1991).

This pattern is all too familiar in our schools. At first, such leaders work longer and harder to keep up with all the initiatives spawned by eager attempts at improvement. As they discover the incredible size and variety of activities and people, they learn to work "tougher"—denying their own personal needs and sometimes those of their colleagues as they drive for excellence, asking more and more from themselves and from others. Such leaders—and there are many that seem caught between paradigms—are finding that they eventually deplete their own resources and come dangerously close to depleting those of the faculty. Many retreat behind governing councils, behind office doors, to the central office, or unfortunately, out of the profession altogether. When the dangers outweigh the possibilities for the leader, the staff has little chance of working smarter collectively.

The cycle of progress requires that a school staff redefines itself as a community responsible for setting and reaching its own goals and capable of managing its own resources. Such redefinition means nothing less than establishing new working relationships among all players. As the formal leader of this group, the principal must not control, monitor, and direct, but must treat this group as a responsible community of adults. Staffs and principals who have historically divided responsibility for decisions unequally, reserved "final say" for the principal, and expected the principal to ride herd on "quality control" cannot overnight share responsibility as a community. They must start by setting in place *together* the groundwork on which future collective action can occur.

Teachers and principals commonly compare their restructuring efforts to "rebuilding a 747 while it's in the air."

The principal's and teacher leaders' first task is to shift the group's compact. Three operating principles form the foundation of a new compact to work smarter collectively:

1. Responsibility and authority go hand in hand;
2. Children and adults learn best in trusting communities in which every person is both a learner and a resource for learning; and
3. All adult members of the school staff care for the institution and community as a whole as well as for their primary roles in it.

These principles make good intuitive sense, and decades of experience in schools and other group settings support them (Rost 1991, Sergiovanni 1992). As a staff considers taking responsibility for all five phases of its own progress, leaders must first help it assess each member's understanding of and commitment to these principles. Are we willing to be responsible for the actions and decisions we will have the authority to make? Are we willing to confront our own blind spots and see our colleagues, students, and their parents as important resources for our learning? Are we willing to set aside what might be best for me or for "my" students to build something better for the entire school?

Leaders Who Work Smarter

If principals and teacher leaders are to help staff make these significant shifts, they, too, face personal and professional challenges. They must ask: Am I willing to cede both authority and responsibility to others? Am I willing to reveal my blind spots, to appear unknowledgeable and vulnerable? Am I able to trust the group to accept responsibility and to exercise power? Am I capable of sharing information about the many aspects of the school that the staff needs to know in order to understand and make effective decisions?

Until these questions are answered in the affirmative *and acted upon* by the leaders, working smarter together cannot succeed. Not only must leaders

Figure 2

The Leader's Role in the Cycle of Progress

Phase of Cycle	Working "Longer and Tougher"	Working Smarter
Criticism	Accept blame and move rapidly to fix the problem.	Listen and ask for evidence.
Self-Examination	Shoulder the responsibility; target the culprits.	Assemble those responsible and ask them to identify the successes and the problems.
Goal Setting	Cover all fronts; assign "task forces" to repair the problem.	Identify goals that can be achieved by those available to achieve them.
New Efforts	Lead the charge (all of them!). Set deadlines and "drive" the teams.	Facilitate frequent and open monitoring and adjustment (do not usurp authority or responsibility).
Consolidation	Convince the rest to adopt the change; hope it lasts.	Celebrate; continuously monitor, and when appropriate, ask: What will we tackle next?

facilitate public commitment to these principles initially, but they must also find ways to revisit them as the group moves along. Commitment to the ideal of working together requires constant attention and discussion. How the principal and teacher leaders respond to each phase of the cycle of progress can spell the difference between success and failure for the whole staff.

Figure 2 describes some strategies for leading a "smarter working" staff and contrasts them with commonly observed "harder and tougher" work strategies. Each is keyed to a phase of the cycle of progress and can be used by principals and others as a device for monitoring how they are functioning. Each of the "working smarter" strategies directs the leader back to the three operating principles. To work smarter, a leader:

- *Faces criticism:* The leader listens and asks for evidence in the face of criticism, placing responsibility on the critic for specifying problems and helping to resolve them. Defensiveness and blaming are avoided, and trust grows.
- *Welcomes self-examination:* The leader involves the responsible players in examining teacher practices and student outcomes. Stewardship for the institution grows, and discord is minimized.
- *Sets achievable goals:* The leader helps the staff to meet the challenges of self-improvement by celebrating strengths and setting achievable goals. Assuring a proper balance between seeking improvement and depleting available resources fends off defeatism.
- *Nurtures new efforts:* The leader involves the entire staff in implementing a change or monitoring its progress, building collective stewardship, and minimizing disintegration at this crucial point when new efforts require changes in everyone's work patterns and resource distribution.
- *Monitors and celebrates:* The leader celebrates staff and student successes and acknowledges the many adjustments necessary in school improvement. The leader enables the staff as a group to acknowledge what works and what needs to be tackled next. The disenchantment with change that schools often experience is offset by a sense of collective efficacy.

Leaders play essential roles in developing collaborative cultures that "lie within the control of those who participate in them, [where] teachers and members together make their own schools" (Nias, quoted in Fullan and Hargreaves 1991). In a culture where all staff members work smarter together, each leader—including the principal—must ask: What is the balance between my productivity and the depletion of my own resources?

In the mid-1990s, the dangers of depleted resources will not diminish for school staffs and leaders. Physical and human resources will continue in short supply; good will and optimism, worn down by a decade of diverse reforms, may be hard to come by. If school staffs are to build on the progress they have begun, working smarter together will be more important than ever. They will need to know where their efforts are paying off and whether their resources will permit them to sustain those efforts. Most school staffs have the capacity for such collective reflection and action. Leaders in both administrative and teacher ranks must redefine their purposes and relationships to tap and build on this capacity. ■

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Creating effective schools today and tomorrow

We can't use yesterday's standards anymore

Creating effective schools today and tomorrow

Lawrence W. Lezotte — Effective Schools Products, Ltd.

The solution to a problem is determined in large measure by how the problem itself is framed. What our society will accept as evidence of positive school reform depends on what we believe to be the problem with today's schools.

Thus, to understand the issues and challenges associated with creating more effective schools for today and tomorrow we must first ask the question, "Why do schools need to reform?"

We must consider that question because, by most of yesterday's standards, schools are actually doing a better job than they ever have. However, they're doing a pretty good job of preparing our young people for a world that no longer exists! But education is about the future and about empowering our young people to live meaningful and productive lives in that future.

Why do schools need to change?

Basically, schools need to change for three reasons:

1. They need to change because our society is changing in so many ways.
2. They need to change because the nation's expectations for the schools have changed.
3. Schools need to change because the population of public schools is changing dramatically.

Our changing society... The most dramatic change we are experiencing is the transformation from an industrial society to a high–tech, information society. This change alone requires schools to alter the structure of the classroom toward a more democratic, team–oriented learning environment; to incorporate available technology into the delivery system; and to emphasize higher–order thinking; to mention just a few of the reforms that are needed.

Our changed expectations of schools... During most of the industrial period, it was expected that the school's educational outcomes would form a bell curve. This means that students were arbitrarily sorted into low, average, and high achieving categories, with about a quarter of the students expected not to meet minimum mastery. But we cannot be satisfied with this bell curve of outcomes in today's information age, because the United States needs more well educated people for the growing number of high–tech jobs. At the same time, the number of low–skill and unskilled jobs are fast disappearing.

Our society cannot compete in world markets unless we educate more students to a much higher level. Fortunately, the knowledge base from effective schools and effective teaching research, coupled with what we now know about how human learning occurs, means that our schools can meet these higher expectations — if we have the will to do so.

Our changing population... The demographics of our nation clearly indicate that our schools face a two–edged problem. On the one hand, schools have been more successful in meeting the educational needs of the children of the middle class — a group whose numbers are declining rapidly because of the lower birth rate among the middle class. On the other hand, the public schools have never been very successful with the children of the poor (minority or nonminority), and this group is growing fast.

Three strategies to school improvement

The current reform movement, which began in the early 1980s, essentially has tried three different strategies.

New training in teacher colleges — First, in response to the call for school reform, colleges and universities, especially the teacher training institutions, asked themselves the question, "What ought to be our role in K–12 educational reform?" Their primary role has been that of staffing the enterprise of the public schools, since every teacher and administrator has to pass successfully through the gates of higher education to receive his/her teaching credentials. This leads to a major discourse on how to reform pre–service teacher education. But trying to reform schools by restaffing them with new kinds of teachers as positions become available can only be a long–term, developmental approach to school reform.

Top–down mandates for improvement — The second major approach to school reform of the 1980s involved top–down state mandates. In at least 40 of the 50 states, either the governor, the legislature, the state board of education, or the state superintendent called for a set of educational changes and has fired those educational innovations into their local schools and districts through a top–down, outside–in, mandates–driven approach to school reform. The history of school change is replete with failed attempts to try to change the schools in an enduring way by this approach.

Bottom–up change (one school or district at a time) — The third major approach to school improvement involves both district commitment and school–level team building and action. Throughout the United States, educators in a large and growing number of schools are asking, "What is the possibility of reforming schools by going straight to the individual district and the individual school and using an internal, bottom up, renewal model (an organizational development model) that involves planning and implementing programs of school improvement from inside?"

The effective schools model

The evolution of the effective schools model (described in the next section) occurred during the 1970s and 1980s, as effective schools research demonstrated that the individual school is the strategic unit for planned change and school improvement. Initially, effective schools advocates thought school improvement should focus exclusively on the individual school, largely ignoring the central office and larger district and community context. The local board of education and the central office staff were largely by–passed.

The current model incorporates the school board and the central office staff in a much more realistic model of how schools and districts operate. Experience over the last eight years has demonstrated that leadership, support, collaboration, and help of the board of education and the central office is essential if school change is going to occur and be sustained over time.

An historical perspective of the effective schools movement — The story of the effective schools movement began in July, 1966, with the publication *Equality of Educational Opportunity* by James Coleman and his colleagues. The controversial findings reported in that document became widely disseminated and debated. This excerpt from the Coleman study summarizes the issue of effective schools:

"Schools bring little influence to bear on a child's achievement that is independent of his background and general social context... this very lack of an independent effect means that the inequality imposed on children by their home, neighborhood and peer environment are carried along to become the inequalities with which they confront adult life at the end of school. Equality of educational opportunity implies a strong effect of schools that is independent of the child's immediate social environment, and that strong independence is not present in American schools."

What is an effective school? — part one Coleman and his colleagues brought into sharp focus the question of whether student achievement derives more from the homes from which children come or the schools to which they are sent. Because of the centrality of the Coleman hypothesis, any discussion of school improvement must begin with the question: "What should we accept as observable, measurable evidence of school effectiveness or school improvement?" The issue of acceptable evidence of school improvement is addressed in the following conceptual definition of an effective school:

An effective school is one that can demonstrate the joint presence of quality (acceptably high levels of achievement) and equity (no differences in the distribution of that achievement among the major subsets of the student population).

What's been working? A review of the available research literature produced several guiding principles for successful school change. They are:

- The single school must be preserved as the strategic unit for the planned change.
- Teachers and other members of the school community must be an integral part of the school improvement process; principals, though essential as leaders of change, cannot do it alone.
- School improvement, like any organizational change, is best approached as a process, not an event. Such a process approach is more likely to create a permanent change in the operating culture of the school that will accommodate this new function called continuous school improvement.
- The research would be useful in facilitating the change process, but it would have to include suggestions of practices, policies, and procedures that could be implemented as a part of the process.
- Like the original effective schools, these improving schools must feel that they have a choice in the matter, and, equally important, they must feel that they have control over the processes of change.

Many processes launched themselves — With these guiding principles, the task of creating school plans to take the school from its current level of functioning toward the vision of effectiveness as represented in the research was undertaken. Literally hundreds of schools launched their effective schools processes. Some did it with help from the outside; some chose to proceed on their own. Some followed the guidelines of the lessons that had been learned, even without knowing the research per se; others chose to try to implement change and ignore what the research on successful change has reported.

Lessons learned — As a result of the diversity in approaches, we can say that effective schools research worked for some and not for others. Fortunately, it has worked for enough schools so that a growing number can proudly claim that they have the results to prove more of their students are learning, and learning at a higher level. These schools feel empowered to commit their professional energies to the proposition that even more students can and will learn in their schools in the future.

These criteria must be operationalized at both the state and local level and be demonstrated in outcome terms, reflective of the school's learning mission.

Are there any doubts? Criticisms of effective schools research have been many and pointed, but one fact remains incontestable: Some schools are able to achieve these extraordinary results. As long as one such school exists, the effective schools debate is not a discussion of theory but a discussion of commitment and political will.

What is an effective school? — part two During the second major period of the effective schools movement, the attention of researchers turned toward the internal descriptions of these effective schools. During this period, researchers sought to answer the following general question: "In what ways do effective schools differ from their less effective counterparts?"

Five effective school factors... Certain characteristics seemed to describe how these schools were able to maintain their exceptional status. These descriptions began to appear in the professional literature. Five factors were described in 1979 by Edmonds in his early research:

1. The principal's leadership and attention to the quality of instruction
2. A pervasive and broadly understood instructional focus
3. An orderly, safe climate conducive to teaching and learning
4. Teacher behaviors that convey the expectation that all students will obtain at least minimum mastery
5. The use of measures of pupil achievement as the basis for program evaluation

More recent studies have described additional factors, which sought to make the original Edmonds' factors more explicit and more operational. Recent studies have also taken the characteristics of the effective school to the secondary level.

In addition, the researchers have now documented the existence of the correlates in other schools in addition to those that primarily serve economically poor and minority student populations. Finally, the research has been expanded to include studies in other countries, particularly Great Britain.

What does the research say to us now? First, schools where students master the intended curriculum do share a describable list of institutional and organizational variables that seem to coexist with school effectiveness. Second, these core factors seem to be robust in that they have endured across the various studies. Third, the effective school can, and generally does, stand alone, even among its counterparts in the same local school district.

One school at a time can work... The major implication of those studies is that the institutional and organizational mechanisms that coexist with effectiveness can be attained by individual schools, one school at a time. This suggests that effective schooling is within the grasp of the teachers and administrators who make up the teaching community of the individual school.

As school practitioners began to discover that the effective school could be characterized by a relatively short list of alterable school variables, some educators began to see new possibilities for their schools. Their reasoning seemed to proceed along the following lines:

If these individual schools had the wherewithal to make their schools effective, as suggested by the original effective schools descriptions, then individual schools ought to accept the responsibility for doing so.

Knowing what is effective isn't enough... Unfortunately, the original research provided little guidance as to how the effective schools became effective. In the more common language of the 1980s, the effective schools research provided a vision of a more desirable place for schools to be but gave little insight as to how best to make the journey to that place.

Progress; even though there was no roadmap... In spite of this major shortcoming, the effective schools movement survived and flourished. The survival seems to have depended heavily on the implementation strategies used by schools.

The following overview focuses on the processes used by Edmonds and Lezotte as they responded to the numerous invitations to work with schools. Their experience was repeated by many other facilitators of effective schools research, with some variations in the processes.

Two major prerequisites... Two major conclusions can be drawn from the lessons from this period of the effective schools movement.

1. While researchers do not have all of the answers, the literature on successful change clearly establishes that some strategies of planned change do indeed work better than others.
2. The process of school improvement based on the effective schools research takes time, involvement, and commitment.

Whenever one tries to gloss over any one of these essential prerequisites, the results are soon diminished. Clearly, when effective schools processes are followed appropriately, school improvement results. However, when effective schools processes are not implemented properly, they fail to produce more effective schools.

Eventually the larger system has to change too... More recent experience indicates that schools can indeed change but to sustain the improvement over the long haul, the local school district has to change as well. There are two important challenges in the district planning process.

1. The plan must address the necessary changes in district–level policies and programs to ensure that school–level change can occur.
2. The plan must not go so far as to mandate what each school must do in its improvement plan.

District level challenges... The first set of challenges, when handled successfully by the district planning group, gives guidance, direction, and provides the human and financial resources to the school–level improvement process. However, if this plan goes too far, the sense of ownership and empowerment leading to the essential commitment at the school level gets lost. Early efforts at implementing effective schools produced an expanded list of individual schools that benefit from these efforts. But as each preceding phase builds upon and adds to what has gone before, the fundamental belief that all students can and will learn is reinforced.

Nine strategic assumptions about the future of education

Like any vision of an alternative and, it is hoped, a better future state, the effective schools process makes assumptions about schools of the future. When taken together, these assumptions describe the changes occurring in the districts that are currently planning or implementing an effective schools process.

When these assumptions (described below) are transformed into reality they change the *culture* of the local school and district. Cultural change takes time, tends to occur in a million little actions, and is clearly incremental. Building on these notions, school improvement can be described as an endless succession of incremental adjustments.

1. *In the future, even more than in the past, all schools will be expected to focus on learning for all as their primary mission.*

Throughout history, the public school has been expected to serve the needs of society. Today's public schools are expected to successfully fulfill three basic missions:

- The school is expected to serve the community as an institution of custodial care.
- Schools are expected to serve the community as an institution that sorts and selects students and prepares them for various roles in a highly differentiated society.
- Schools are expected to serve the community as an institution of learning.

Learning first — The effective schools process asks schools to commit to learning for all as their primary institutional mission. However, two major forces seem to be operating to make it difficult for the local school to maintain a primary focus on the teaching for learning mission.

Challenge to putting learning first: custodial care is needed... The changing nature of the American family structure, with more children being raised by single parents and the proliferation of the two–parent working families, means that more and more of the custodial responsibilities for child rearing are shifting to the school.

This would not be a problem in and of itself except that the demand for additional custodial services has tended to reach the school well ahead of the financial and human resources necessary to provide these services. The prospects for the future are going to be a continuing challenge to educators, for as far as one can see, the American public school is caught in a rising tide of expectations around the custodial mission.

Challenge to putting learning first: the public still expects us to sort students... The second force that distracts the school from its primary teaching for learning mission is the demand that schools sort students. The public has been unwilling to accept schools that teach all children. In many ways, intended or not, many of the innovations that have arisen from the *Excellence Movement*, such as higher standards and stricter graduation requirements, are having the effect of increasing the sorting and selecting function of the schools.

A struggle over putting learning first is inevitable... The implications are clear: If schools commit to the learning for all mission, that act is tantamount to engagement in a political struggle against these other powerful forces. If schools are going to live up to the *American Dream*, they must be prepared to engage in that political struggle.

2. In the future, even more than in the past, schools will be held accountable for measurable results or outcomes.

We must be accountable — The call for accountability that has had a major impact on the public school for the last two decades is largely a movement that asks schools to be more accountable for measurable results. At this time, there is no indication that the pendulum is likely to swing back in the other direction. In fact, the evidence suggests a further intensification of the call for evidence of outcomes.

If we accept this continuing trend as being the *new truth* to which schools must respond, then this important question must be addressed: "For which outcomes, results, or consequences, should schools be held accountable?"

The new measure for school success... Our standard should be: "Did our students learn what we taught them in our program of curriculum and instruction?" This is the gauntlet of accountability that should be thrown down. But if schools are going to move toward this standard, a major change will have to be made in the measures of school effectiveness.

Schools will have to become less dependent on standardized, norm–referenced tests of achievement and, at the same time, increase their use of curriculum–based, criterion–referenced measures of pupil mastery.

If schools take seriously the curriculum–based and criterion–referenced measurement suggestion, teachers and administrators will have a much broader view of the outcomes of instruction.

3. Educational equity will receive increasing emphasis, as the number of poor and minority students continues to increase in proportion to the rest of the population.

Educational equity — One of the principal reasons why the effective schools process is receiving such favorable attention is that the process emphasizes educational equity. The client system is changing, and educational equity in student outcomes is going to be a major political issue for the future.

Aggregate measures cloak deficiencies... The effective schools process asks schools to analyze their measured student outcomes through the process of *outcome disaggregation*. That requires going beyond the aggregated data which simply indicate whether the total student population have mastered the essential curriculum but does not reveal whether students from all socioeconomic levels, different races, and both genders have achieved mastery.

The disaggregation process seeks to identify the percentage of students in various subsets who achieve mastery of the essential learnings at each grade level by program, course, school, et cetera.

Disaggregation is a practical, hands–on process that allows a school's faculty to answer the two critical questions: "Effective at what? Effective for whom?" It is a process for finding problems, not for solving them.

Sometimes a school staff is pleasantly surprised because the results look better than they had anticipated. More often the staff are disappointed because the results are worse than they had feared. Whatever the response, the analysis helps to stimulate a productive discourse among the staff about the impact of their program on all their learners.

4. Decision making will be more decentralized as the individual school is recognized as the production center of public education and, therefore, the strategic unit for planned change.

Decentralized decision making — The story of public education in this century is the story of increased centralization. Clearly, more and more

"Empowerment should not mean that each teacher, acting as an individual, is expected to behave as if her/his classroom were a free standing, one room schoolhouse."

of the decision making, both with respect to expected outcomes as well as prescriptions of process, have moved further from the individual classroom and school.

In the private sector, corporate leaders have begun to act on the belief that the next increments of increased productivity in their organizations will only come if decision making is moved back to the shop floor of the industry. We hope that public sector organizations will quickly see the virtue in this strategy.

Robert Waterman in his popular book, *The Renewal Factor*, says that the people who are in the best position to improve the organization's productivity are the people who currently do the work of that organization. The keys are involvement and decentralization.

Decentralization requires 'leadership' from the center... Decentralization should not be interpreted by either the state or local authorities as an abdication of their responsibility. The legitimate authorities have a duty to clarify and give direction to the schools. That is, the state and local authorities have a responsibility to articulate clearly the goals and priorities of the schools and what they will accept as evidence of progress toward those goals. Beyond that, each school unit should be given as much discretion as is possible regarding how the available resources will be deployed to achieve those intended outcomes.

5. *Collaboration and staff empowerment must increase if building level staff are going to become meaningfully involved in the planning, problem solving, and evaluation of their schools' programs.*

Empowerment — One of the most popular terms in the educational community today is empowerment. Many administrators fear it; many teachers seem to want it, while many others seem to be frightened by it. In the context of this article and the effective schools process, it is the individual school which is being empowered — accepting responsibility for its actions.

The educators who constitute the teaching community of the school are being encouraged to take greater responsibility for their collective actions. Empowerment should not mean that each teacher, acting as an individual, is expected to behave as if her/his classroom were a free standing, one room schoolhouse. Rather, the whole faculty should be empowered to use their collective knowledge to make collective judgments and take collective actions toward school improvement.

Challenges to empowerment... In part, the major problem has been that boards of education have told school faculty not only what to do, but how to do it. To empower any group in which the goals of the group are not clear is really not an act of empowerment. It is more likely to create a milling crowd. It's desirable for the local board of education to seek the advice of the professional educators before establishing the ends of education. However, once these are in place, it becomes the obligation of the school community to strive to meet these goals.

6. *School empowerment processes must emphasize the utilization of research and descriptions of effective practices as a major source of input to school change.*

Continuous learning for staff — The effective schools process starts with the sensible assumption that teachers and administrators are already doing the best they know to do, given the conditions in which they find themselves. If one accepts this assumption but still wants to improve the current outcomes of schooling, then it becomes clear what must happen. The professional educators need to add to what they know and proceed to change the current conditions in which they work.

New knowledge for teachers can be found both in research, and in case descriptions of practices that have proven effective elsewhere. In order to assure that the best available practices are known to all, the local district needs to invest resources in staff development and continuing education to be sure that their professional community operates from a state–of–the–art knowledge base.

Make no mistake, research and knowledge of best available practices do not provide all the answers. Much remains to be done, but research tells us that some things do tend to work better than others, and it thereby identifies places to begin the improvement journey.

7. *Technology must be used to accelerate the rate of feedback currently available in instructional monitoring systems used by teachers and administrators.*

Just–in–time feedback to support re–teaching — One of the major shortcomings prevalent in schools today is the absence of *re–teaching*.

Here, re–teaching is meant to include a wide range of strategies that the teacher can use when some of the students in the class have not mastered an essential concept or skill after the initial instruction by the teacher.

Re–teaching prerequisites... To effectively and efficiently use the powerful concept of re–teaching, three conditions must exist

1. The school mission and core values must create the expectation that the first obligation of the teacher is to assure mastery of the intended curriculum.
2. Teachers need to feel empowered to use time and other institutional strategies (e.g. regrouping) to be sure that each student has ample opportunity to learn for mastery.
3. Teachers need timely feedback on student performance so they know who to move forward, who to re–teach and what re–teaching areas demand special emphasis.

It is to this third point that the use of new technology seems immediately most promising.

Technology now exists, and is in operation in some places, that permits the teacher to receive nearly instantaneous analysis of student work. Why is this so crucial to re–teaching? If there is one strategy of learning that is undervalued and underutilized by the typical school today it is re–teaching to assure student mastery.

8. *School administrators will be expected to demonstrate skills both as efficient managers and effective visionary leaders.*

Leadership — One of the strong messages that comes from the effective schools research is the critical role that leadership plays in initiating and sustaining the processes of school improvement. When this research is coupled with much of the contemporary research in the general area of leadership, it seems clear and compelling to think that our local school and district leaders need both knowledge and demonstrated skills in managing a vision–driven organization.

The implications that can be drawn from this research are far–reaching, indeed. Local districts are going to have to accept more responsibility for in–service training of administrators. Currently, the opportunities for practicing administrators to involve themselves in academy programs are increasing rapidly, and organizational encouragement and support must be forthcoming as well.

One suggestion that seems to be working well for many local districts is to offer prospective administrators pre–leadership training opportunities. Such experiences will allow the prospective administrators to develop skills and also provide the opportunity for the candidate to be observed in *real–world* settings. Such programs should be able to reduce the number of misplaced administrators in the future.

9. *By emphasizing student outcomes, schools will be able to loosen the prescriptions of process, thus leading to fundamental school restructuring.*

Restructuring — If empowerment is one of the most popular terms in education today, school restructuring is the other. Scholars have spoken about the need for significant change in the current school organization, role definitions, and administrative procedures as both desirable and even necessary prerequisites for lasting school improvement. Little disagreement exists that certain aspects of current school culture make it difficult to serve students effectively.

Nine strategic assumptions about the future of education

1. *In the future, even more than in the past, all schools will be expected to focus on learning for all as their primary mission*
2. *In the future, even more than in the past, schools will be held accountable for measurable results or outcomes*
3. *Educational equity will receive increasing emphasis, as the number of poor and minority students continues to increase in proportion to the rest of the population.*
4. *Decision making will be more decentralized as the individual school is recognized as the production center of public education and, therefore, the strategic unit for planned change*
5. *Collaboration and staff empowerment must increase if building level staff are going to become meaningfully involved in the planning, problem solving, and evaluation of their schools' programs*
6. *School empowerment processes must emphasize the utilization of research and descriptions of effective practices as a major source of input to school change*
7. *Technology must be used to accelerate the rate of feedback currently available in instructional monitoring systems used by teachers and administrators.*
8. *School administrators will be expected to demonstrate skills both as efficient managers and effective visionary leaders*
9. *By emphasizing student outcomes, schools will be able to loosen the prescriptions of process, thus leading to fundamental school restructuring*

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Dr. Lezotte earned his doctorate from Michigan State University in 1969. During his 18 year tenure at MSU, Lezotte served as chair of the department of educational administration, and as associate director, with Ron Edmonds, of the Center for School Improvement. Lezotte was a member of the original effective schools research team with Ronald Edmonds and Dr. Wilbur Brookover. Dr. Lezotte is currently senior vice president with Effective Schools Products, Ltd. in Okemos, Michigan.

The question is how to begin this needed restructuring in a way that is feasible.

Challenges to restructuring efforts...
Schools are not likely to be able to begin the business of restructuring unless the school is within a safety net to assure that students are not unfortunate victims of failed restructuring.

One way to establish this safety net around a school is to make certain that student outcomes or results are closely monitored in a way that indicates the levels of student mastery of the intended curriculum. Parents are not likely to allow schools to be at variance with the norms of other schools unless they can be shown convincing evidence that the new processes are working as well as, or even better than, the old.

Teachers and building–level administrators will be energized by the opportunity of doing things differently, but they will not be willing to risk much unless they, too, can be convinced that better results are forthcoming.

Final thoughts

We have been very prescriptive of the processes of schooling in the past because we did not know a better way. Today, the call for evidence of results provides educators with a new way of thinking about the instructional processes.

Perhaps we can truly test the Jeffersonian notion that the greatest inequality occurs when unequal people are treated equally. We need a delivery system that differentiates student needs if more of our students are going to be brought to expected levels of curriculum mastery.

Creating more effective schools — schools where all children learn — is both an achievable task and a moral imperative. To assure success, all of us must stand and deliver! ◆

III.

Quality Goes to School: Applying Quality Management

Quality
Goes to
School

IS TQM FOR EVERYBODY?

ANNE TURNBAUGH LOCKWOOD

Theresa M. Hicks, a second-grade teacher at Denver Place Elementary School, Wilmington, Ohio, is passionately committed to the principles of W. Edwards Deming and the Total Quality Management movement. For the past two years she has worked to implement the central concepts in her classroom, first with third graders and, this past academic year, with second graders. In 1992 she was the recipient of a $10,000 research grant from W. Edwards Deming. In this article, she describes how she began to implement the quality movement's concepts in her classroom and the manner in which students responded.

Long before Theresa Hicks knew about any of the theoretical and philosophical concepts of W. Edwards Deming and what is now called Total Quality Management, she was committed to teaching in a manner that placed students squarely at the center of their own education. She also fiercely believed that students should not be ranked, sorted, separated, or classified—and rejected a conventional teaching role for herself as sole content authority and dispenser of knowledge.

Originally educated in horticulture, Hicks became aware of her rapport with children while she was operating a retail nursery. As she puts it, "I kept finding so much pleasure in trying to relate to kids that I decided to change my career altogether."

After receiving a master's degree in education, she began teaching in a classroom for children who had been categorized as learning disabled, grades one through six.

That first teaching experience confirmed her instinctive approach toward working with children. "The more I got to know the kids, the more I realized that it didn't matter what grade they were in," she explains, "and it didn't matter if they were classified as learning disabled or if they had severe disabilities. They were the same as other kids who had sought me out when I was working in retail. They were just kids. I didn't like the fact that I had to classify them and put them into special categories."

In addition, Hicks felt tension between the way she had been taught to teach and the way she wanted to teach. "A lot of the things I was taught in terms of setting up my classroom structure and basic teaching methods didn't seem human. It didn't seem to me that I would relate to the kids as well as I would if I could just be myself."

As she began to read and study more widely, she found affirmation for her intuitive beliefs about education. "I found that learning is not just something that takes place in the classroom. It's a part of life. I became more and more interested in trying to make my material have some meaning when they went home, some sort of carryover into their lives."

Without realizing it, Hicks's first step toward a TQM classroom was to reconceptualize her own role. "I started to see that I could break down barriers and remove myself from an authority position to a position where the students would be co-teachers with me." She adds, "I wanted to be a facilitator and coach."

Out of the Crisis

At the point where Hicks was reframing her teaching role and approach to the learning process, she began to read Deming's work. It had profound personal meaning for her.

She remembers, "Deming says that kids start out with great self-esteem, but through all the things we have in elementary school—the gold stars, the stickers, the rankings, the ways that teachers subjectively give prizes or punishments, the consequences that are positive or negative—their motivation to learn is slowly ripped away. Eventually students will end up as workers in our society who do not want to learn something new."

That realization, Hicks claims, was an epiphany for her. "At that point I said, 'The buck stops with me.' If I believe what Dr. Deming is saying, and if I gather evidence as to how it has worked in Japan and for other companies, I must take faith in that evidence and believe it can work to change education. And if I can't wait for my system to agree with me, then I have to do something about it in my classroom."

First Steps Toward Quality

Fascinated by her own reading of Deming's classic, *Out of the Crisis*, she brought the book with her into her third grade classroom. "I brought it as a personal reference, more than as something I would teach the kids," she recalls.

But her enthusiasm about what she read prompted her to select concepts and consider how they might work in her classroom. She began with Deming's equilateral triangle about quality. As she explains it, "At the top of the triangle is the product. The left-hand corner of the triangle represents how the customer is trained to use the product, and the right-hand corner represents how the customer *actually* uses the product. All of that has to come together to make a perfect triangle or you won't have quality."

She remembers the moment she began a discussion about quality. Walking to the board, she told the students about Deming's triangle and facilitated a lively discussion about the relationship of the triangle's concepts

Focus in Change

to companies. "I had a sharp group of kids," Hicks says, "and after I asked how they saw the triangle working for us in our classroom, they told me that they saw what I taught them as the product."

That first year, Hicks limited the amount of quality concepts that she introduced into her classroom, although she attests that her students "bought into it all the way." Assigned to second grade the following year, she admits that she was uneasy about continuing to implement quality concepts. "I was absolutely terrified," she says, "because I was sold that this was the way to go, but I wondered how I could possibly do it with little kids."

Her approach was to tell the class at the beginning of the year that she was working with Deming, a contact that she had initiated. "I told them that he was trying to teach me about what was going on in industry that was positive. I said that I would be working with the students to share some ideas and to get their ideas throughout the year."

She decided to give grades only when absolutely compelled, and to administer tests solely to diagnose weaknesses in her own teaching. "If I gave a test, its purpose was to try to look at myself, how I could improve my teaching."

Part of her apprehension about introducing concepts from the quality movement into her second grade classroom stemmed from her belief that second graders were already committed to the system that ranked them. "Seven-year-olds are used to stickers, certificates, reading groups, everything that I don't do or that I don't like doing, such as ranking and separating the kids."

To illustrate some of the quality movement's key concepts, Hicks told the class she wanted to show them how to record numbers or information on a graph. She suggested that two students play jacks while the others watched. "I told them the purpose was to give us information, not to compete."

After showing the class how the two scores could be recorded onto a piece of chart paper, she demonstrated to them how the chart could be used. "I told them they would see it as a picture, and we could put it up on the wall and think about it. We could talk about it as a group, much as we would if we were an art class looking at pictures."

Her class was enthusiastic. "Two of the kids brought in their own jacks and balls. I had them stand up in front of the group and start taking turns. I plotted it, explaining to the kids what would go on the horizontal axis and what would go on the vertical axis. I said that these charts are things that their parents probably saw all the time in their companies."

After the two students had played for ten bounces of the ball, Hicks stopped the game and asked the class to concentrate on the chart that recorded the data from the game. "I told them that if I were going to hire somebody to represent my company, and if my company produced jacks, we would be selling the toy or trying to convince people to play more jacks. I asked which student the class thought I would want to hire."

Predictably, the class chose the child with the higher score. Hicks then asked the class if they believed she had enough information to judge.

"I asked if they thought I was really basing my decision to hire on some subjective reason, such as stopping at ten drops or thirteen drops of the ball. Who's to say that it's right for me to judge even at twenty drops of the ball who I would want to hire?"

The two children picked up the

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game again and not surprisingly, the other child began to do better. At another, arbitrary count of bounces of the ball, Hicks stopped the game for the second time.

"I said, let's stop right here and talk about this. If I had hired this one boy to represent my company, I would have been suboptimizing my chances with this other child because he was equally as good. He could have had other skills that would have enabled him to represent my corporation better than the other child. I asked: 'Did I have enough information to hire anybody?'"

She encouraged the class to think about how this might relate to them in the second grade. "The kids replied that the scores on jacks were similar to how they might do on a test on a given day, that there might be a reason outside of their control that caused them to do well or very poorly. There could be some reason outside of their control altogether that caused me to judge them."

Hicks explained to the class that the same reasons could apply to her as well. "If I happened to be in a really bad mood someday, I could choose to manipulate the standards by which I would judge a child. I explained that I had two things for us to look at: their actual performance and the variations in it, plus my standards and the variation in my standards.

"That," she says with satisfaction, "got us into a discussion of common and special causes of variation."

Barriers to TQM

Such a sophisticated discussion of variation may seem amazing at the second grade level, but Hicks is not surprised that it took place. What distresses her, however, is her position as a soloist within her school and district—the only teacher applying TQM concepts.

Since the concepts central to the quality movement require thinking about systems, how does she function by herself? In her answer, she differentiates between interactions she has with the children in her classroom, and interactions with teachers at the building level.

"At the classroom level it is extremely successful," she says, "and the children are free to learn, have a good time, and share with each other. I explain that I'm there as a coach to try and help things along. I am hired to make sure that they learn what I teach them and that they teach each other properly, but I'm also hired to be sure that everyone in the room is safe and happy."

Safety and happiness in the classroom translate into rules of mutual respect and equity that Hicks will enforce if necessary. "I tell the kids that if they ever feel that their freedom or happiness is in jeopardy they need to come to me because I am the person in charge. I am the one who can listen and hear both sides of the story and then make a judgment."

She is quick to point out that children must be free of fear. "They have to feel that the barrier is broken down to where they *can* come to me."

Although she reports that her classroom experience with TQM has been nothing less than positive, operating as a soloist does present its own, special sorts of problems. Hicks describes it as "difficult," but points to support that she receives from prominent figures in the quality movement. "I have had tremendous support from Dr. Deming and Myron Tribus. I sought people out, the people that have skills. I would ask if they thought I was on the right track. I would explain that I was working at a second-grade level and they would give me feedback."

The feedback has shaped her philosophy, Hicks says, but the support she received did not extend to her building. "Teachers were absolutely appalled that I was teaching things outside of what is typically thought to be second grade. They would say, 'You're not supposed to be teaching vocational skills to regular mainstreamed kids.'"

Her peers frequently construe what she teaches as vocational, Hicks explains, and place other restrictions upon content as well. "I received all kinds of flak about teaching upper-level math, about teaching fauna.

"Teachers would say, 'You're supposed to teach about dinosaurs, not fauna.' They thought what I was doing was too hard for the kids. So I wondered what I was doing that was wrong."

But now she reassures herself. "If it's not in the textbook that doesn't mean it's wrong," she says. "I told myself not to talk about it as much, and we coexist peacefully."

Why TQM?

But how much of Hick's success is truly related to the concepts of the quality movement, and how much is connected to her innate ability as a teacher? Hicks admits that her basic attitude toward teaching would be the same, "whether I'm involved with Deming's work or something else. I am constantly looking for what research is telling me, and I'm constantly looking at myself as a lifelong learner." She adds somewhat plaintively, "I'm finding that not everybody is like that."

But TQM, she maintains, gives her a discipline to apply to her activities. "It gives me a pathway to follow and keeps me directed in the mode of continuous improvement. It has redirected and structured me so that I realize that you must adopt something logically, you must do it through data and analysis."

It has also helped remove her own fear of making mistakes. "I'm not afraid to say I really messed up. I can go back and look at what was positive and what was negative and then try to improve the negative points. Because of that, I'm not wasting as much time."

Focus in Change

Given her personal commitment to applying TQM concepts to education, what does Hicks believe is needed to make TQM work systemwide? Her answer comes without hesitation.

"A lot of work," she replies. "It takes true commitment. The first thing that has to take place is breaking down the barriers between people, eliminating whatever is standing between two people or two groups or two levels within the system. You must break that down, talk about it, and rework it so those barriers don't exist anymore. After you break down the barriers, you really must educate everybody as to what's going on and what was learned, day to day."

Are some teachers more amenable to implementing TQM concepts than others? Hicks's answer is surprising. She says thoughtfully, "The more creative a teacher is, the more likely it is that she will not hear the whole message. Frequently teachers like a project that I've done, but they don't want to hear about understanding and appreciating a system. They want to hear about the hands-on kinds of things. If they finally do listen, they may realize that it is a creative way to run a classroom, so they will listen to that part. But then comes statistics."

School staff frequently balk at the statistical component of TQM, she comments. "If teachers buy into all the other parts, they don't want to buy the statistical part." Or, conversely, some teachers like the statistical tools and techniques, but resist systems thinking.

Although Hicks realizes that the road to full implementation of TQM will not be smooth, her personal commitment to its key concepts has not wavered. She explains that she sees TQM as an inclusive movement, one that ideally must involve everyone in a district at all levels. "TQM should not be saved for the gifted, and it should not be reserved for the kids who are disabled or dysfunctional. TQM is for everybody."

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"WHY ARE WE HERE?"

ANNE TURNBAUGH LOCKWOOD

David Langford joined the staff at Mt. Edgecumbe High School in Sitka, Alaska, in 1985 as the school's technology teacher/coordinator. In 1988, he introduced and began to implement the concept of Total Quality Management, first within his own classes and eventually schoolwide. Students from his classes have given presentations throughout the United States, England, and Canada on changing education through quality management. Presently Langford leads his consulting firm, Langford Quality Education, which is headquartered in Billings, Montana.

Three years ago David Langford might not have shown his growing dissatisfaction with teaching—he had received various teaching awards for his work as a technology teacher at Mt. Edgecumbe High School in Sitka, Alaska. Yet a gnawing discontent with working conditions and lack of student motivation prodded him toward change, even though Mt. Edgecumbe—prior to its TQM days—was recognized in Alaska as "one of the answers to the educational problem," according to Langford.

"We had all the money that we needed to do anything we needed to do," he says in a down-to-earth, easy manner. "We hand-picked our faculty out of a thousand applications, we had a new site that we spent $22 million remodeling, and we were already being touted as one of the best schools in the state."

But the quality of work life was poor, Langford says, so poor that teachers had health problems related to stress, such as bleeding ulcers. Many dreaded coming to work in the morning. And Langford himself, who had been the lead negotiator for the teachers' union, was demoralized by a negotiation process that had dragged on for three years.

He describes the negotiation process as adversarial and destructive. "It was rendering the administration ineffective because the faculty was no longer interested in working with them. The point was to try to discredit them, to try to make them look bad so that we could look better, so that we could get a contract. In three years of negotiation, we lost 40% of the original fifteen faculty."

Applying Quality Concepts: The Beginning

Disenchanted to the point of considering a career change, Langford returned to Arizona for a visit—where he attended graduate school—and responded to a fellow teacher's invitation to meet with a senior vice president for quality at the McDonnell Douglas Corporation. "I thought I knew quite a few things," he says, "and in an hour and a half Jim Martin at McDonnell Douglas sliced me up and then started putting me together by giving me materials, books, tapes, articles, and directions. He said, 'Don't quit the system; go back and make a change. Here's how you can do it.'"

Although Martin stressed that he did not know how to apply quality improvement concepts to education, Langford felt renewed by the encounter, and began studying and contacting corporate people nationwide who had been active in the quality movement.

"Everyone kept telling me that the process has to start from the top, that you have to get the top involved," he says. But when he initially tried to interest the school's administration, he says they weren't interested.

Reluctant to give up, Langford shifted his thinking. "I decided that perhaps I was at the top of something, such as my own classroom. If I was really going to make a difference, what I needed to do was start managing my classroom in a whole different way."

He started on a small scale, choosing one of his best classes. "Every day I would ask questions like, 'Why are we here?' The kids would say, 'To get good grades,' 'Because so-and-so made me,' those kinds of answers."

Discussions about the purpose of education continued for some time as Langford explained Deming's fourteen points to the class. "I asked if they would be interested in helping me understand and work through this process, because I didn't think that the way I was teaching and the way we were operating were the most effective. The only way I knew to change would be to manage things differently with their help."

And he was persistent in his approach to change. "Every day I'd ask, 'What have you learned?' Very quickly we started defining the system of education, and then we started thinking about what we needed to study about the system."

"Why Are We Here?"

To acquaint students with some of the statistical tools and techniques of TQM, Langford sent the seven members of the class out on a mission to collect information about their fellow students and other teachers.

"They randomly selected classes and collected information that we analyzed. We looked at how many minutes were spent listening to lectures versus participating in hands-on activities, what percentage of students were late, how many kids were sleeping in class per day. Before we had always looked at individuals and we were only concerned with individual performance. Now, my students started counting the number of people per classroom, and that allowed us to begin to think systematically."

Meanwhile, Langford continued the dialogue about educational purpose with his students and decided to stop assigning them grades. "I told them that Deming says grades take away from intrinsic motivation. The only way I knew to get out of a grading environment while we were still *in* a grading environment was to give everyone 'A's'. They asked, 'If we don't do anything we still get an 'A'?', and I took a little hop of faith and said yes."

Langford also told students that they did not have to attend class and they would still receive 'A's'. Inexorably, he then led his somewhat incredulous class back to the question: "Why are we here?"

As students became more skilled at studying the educational system around them, they raised money to visit the McDonnell Douglas Corporation as well as several other corporations that were using quality improvement concepts, including Motorola, which had won the Malcolm Baldridge Award the previous year.

Langford explains, "The corporate people rolled out the red carpet and did a great job explaining what they were doing. The kids came back and did a presentation for the whole school in which they explained what they had learned." The superintendent, impressed by the students' level of commitment and independence, became a believer in the quality movement.

"At that point," Langford recalls, "we started training for all faculty." At the end of the training, a unanimous faculty vote secured additional training, although the initial training was mandatory.

Langford reflects that he would not make training in quality management mandatory if he were instituting change now. "I also wouldn't call it TQM. If we're into quality management now, what were we doing before? Was that poor quality management? We were doing the very best job that we knew how to do at the time, but here are a whole new set of things that will help us do an even better job."

> *"I also wouldn't call it TQM. If we're into quality management now, what were we doing before? Was that poor quality management?"*

Expectations and Results

Langford says that his expectations prior to initiating work in quality improvement were shattered by the results. "I expected to see higher test scores, and I expected that the kids would follow directions better and work more on the things we wanted them to do. What we got was something totally different."

He adds candidly, "I wasn't able to cope with it for a long time."

Implementing the concepts of the quality movement resulted in a much more independent student, he claims. "We got students who wanted to take the responsibility themselves, not only for the learning but also for planning it, directing it, and moving through it. They were able to come into new situations and assess them, look at situations and assess what needed to be done, make changes, learn to use the graphical charts, and so on. They became very good at giving presentations, learning to persuade other people and change ideas.

"Suddenly we had a new kind of student who was looking five, ten, fifteen, even twenty-five years ahead. Before, I hardly had a student who could look past this Friday's dance. Now we had people making plans for themselves and the state and their relationship to that. They were seeing the interdependent role that they play. This was exactly what all the corporations I talked to were saying that they needed in employees."

No More Tests—and Why

Testing, ranking, and grades remain anathema to Langford, who maintains that test scores are basically meaningless within the quality movement schema. "Test scores don't test the things that this kind of a process fosters, such as intrinsic motivation, drive, vision, purpose of life and organization."

He remembers that prior to schoolwide initiation of TQM concepts, grades and tests were used always in a limited context, such as how students performed compared to their performance the previous year. "That's what Deming calls driving your car by looking through the rear-view mirror," he comments wryly. "We couldn't see testing as a process, nor could we see the problems we were dealing with as anything except isolated situations. We didn't understand the interrelation of things to the whole system, that when you change one factor that single change affects everything else."

He recollects early attempts to achieve quality that, while well-intentioned, were ineffective. "At the beginning, we started attacking all the normal things that usually plague schools, trying to remove what is bad in an organization. We tried to remove tardies and discipline problems. But the real power of the movement is not in working to get rid of what is bad but in learning how to measure, promote, train, and work towards what is good."

Total Quality Learning

Langford sketches an example to illustrate what he means. "We worked on the tardiness problem for a long time and got it to a very low rate, but one of the root causes of student tardiness was that the classes were boring.

"You can get your tardiness rate where you want it to be, but you still haven't done a thing to change the root problem, which is the learning process itself and how that functions. It's really in the last couple of years that we recognized, as a system, that if we have a tardiness problem, it's not because of the individual. It's the system, and what we need to do is study why students would want to be tardy. That's when I coined the phrase 'total quality learning.' What you try to do is turn the whole organization into a learning organization through constant experimentation and study of what you have done."

And dramatic results, he says, can only come from involving the people who are doing the work. "A lot of educators think that those people are teachers. I look at teachers as middle management. The people doing the work are the students. Unless you start involving them in the management planning, analysis, and change process within the classroom, everything that you do is going to be teacher or administrator-directed, and you're back in the old system of telling people what to do."

Constancy of purpose is a creed that Langford adheres to rigorously. "You must develop constancy of purpose. Why are you in this class? Why are we learning this information? How is it going to benefit me? We call it 'Station WIFM—What's In It For Me,' and constantly return to that, so that students see a relationship between the work that they're doing and their future."

Langford returns to his point about difficulties independent, self-motivated students can present to teachers accustomed to a more authoritarian role. "As a master teacher, I was rated on how well I controlled the classroom, how well I put down discipline problems, how well I could keep kids out of the principal's office, how well I garnered resources, used them and built my program. I was not rated on understanding systems, on realizing that building my program might be achieved at the expense of all other programs."

Langford uses his own experience to predict problematic areas for teachers. "It's going to be difficult," he foresees, "for teachers to suddenly assume these concepts and then continue to be managed in a system that fosters the opposite.

"That's why it's critical that the whole system understands the concepts. I did it from sheer force of will, and started without the blessing of administration. A lot of teachers that I'm working with across the country have a significant advantage. They already have superintendents and principals who are giving them license to experiment and change. They don't always know what that means, nor are they prepared to manage the situation that might be evolving, but at least they know enough to know that they need to be doing something different."

How does he respond to critics who might like the basic concepts of TQM but who argue that there is a need for some kind of assessment of student achievement apart from the statistical tools of TQM for the purpose of accountability?

Langford pounces on the word "accountability," saying, "Accountability is just a fancy word for blame. You're trying to find out who you're going to blame. Once you get over that hurdle, you start to say, 'There's nobody to blame; the system is giving us a certain level of performance.'"

However, school staff can learn from the system's level of performance, Langford believes. "What can we learn about that level of performance? How can we move the average level of performance up and at the same time shrink the variation? You have to understand a little about the theory of variation and how that applies."

More than the tools and techniques of TQM, however, Langford explains the quality movement as a different way of viewing the world. "It's a way of thinking about what you're doing and how you do it. It's a willingness to exceed expectations of those that you work with."

He admits that the process is simplified by a thorough understanding of the tools and techniques. "And the more you understand the interaction of people in teams and groups, the more successful you're going to be."

Mt. Edgecumbe's Venture in Quality

How One Superintendent Learned the Difference Between Managing and Leading

BY LARRAE ROCHELEAU
Superintendent, Mt. Edgecumbe High School, Sitka, Alaska

"Edgecumbe Enterprises," the cottage industry through which vocational education is taught, exports smoked salmon to Japan.

I've been in educational administration for 20 years, but until three years ago I didn't know the difference between a manager and a leader.

It's now very clear. A manager works *in* a system and a leader not only works in the system but also *on* the system.

I've learned this in what some might consider an unlikely setting for a novel experiment in participatory management: a state-run boarding school where most of the 215 students are Alaskan natives.

Opened as a state residential school in 1985 after years as a Bureau of Indian Affairs school, Mt. Edgecumbe High School has developed over the past few years a culture and climate that is different from any school that I have ever seen or read about.

We believe students are our customers and we continually attempt to improve their academic and residential lives.

We're doing this by incorporating some of the teachings of W. Edwards Deming. We've rewritten Deming's 14 points from an educational perspective. One critical item we learned early on is not to throw anything out until you have something to take its place.

A case in point is the grading system. Few of our students or staff favor letter grades. We have worked for two years to come up with a better system involving portfolios. But portfolios aren't inclusive enough since colleges won't accept our graduates without grades, grade point averages, and class rankings. In the end, we haven't significantly changed our grading system.

We also have attempted to remove fear from the workplace and to open up communication lines.

Building Consensus

The school year begins with a week-long course on team- and esteem-building called "ropes." Students get to know each other, along with the faculty, and learn to trust one another. An esprit de corps is nurtured.

New students are tested before they actually start the academic year for proper class placement. No strictly academic classes are held for the first seven days the students are on campus.

Our participatory management system attempts to build consensus for major decisions in the curricular, budget, and capital project areas. Students, teachers, dormitory staff, administrators, and others fill out priority lists throughout the year in order to give the superintendent the participation and buy-in needed. We seldom vote on issues. We strive for no surprises.

I used to operate as a benevolent dictator as superintendent. Now I would consider myself more as a team facilitator and trainer of staff and students.

Steven Covey's book, *The 7 Habits of Highly Effective People*, is taught to students and staff alike. During the past school year, this contributed to an unusual school cry: "Response-able." Students were held at least partly responsible for their own education. We stressed intrinsic motivation.

We teach vocational education through a cottage industry called "Edgecumbe Enterprises." This is a student-run business that has exported small amounts of smoked salmon to Japan over the past three years.

The concept is a cross-curricular approach to teaching vocational education by incorporating marine science, computers, Japanese language, geography, Pacific Rim culture, art, science and technology, and other classes. The material taught in these classes has much more relevance when it's being directly applied to an operating business.

Ongoing Training

I used to believe teachers and administrators were sufficiently trained to accomplish their jobs. If people were not trained, then we always had three days of inservice during the beginning of the school year, two days during the school term, and an additional two days at the end of the school year. That's all we need, right?

I now firmly believe you must allow staff time for training during the regular work week. Excellent teachers need the extra time the most. You cannot expect people to work longer. You must train them to work smarter and give them the time to do it.

The weekly training has opened the communication lines, leading to new cooperative ventures.

Still, it's taken a tremendous amount of training to develop our culture and climate. We had to restructure our school day in order to provide two 90-minute training sessions each week for teachers, office workers, students, dorm staff, maintenance staff, and administrators. Most groups are trained separately.

To provide release time for the staff training, we bring in community people to teach the students such informative lifestyle skills as AIDS education, personal hygiene, career guidance, and timber industry issues.

While we do not have 100 percent buy-in of all students and staff, I have slept better since we began to change our culture. I used to feel like a "lone ranger" and felt the existence of the school was on my shoulders. I no longer need to feel that way.

I now recognize a manager puts out fires and a leader does preventive maintenance and long-term planning. A manager demands and a leader facilitates. A manager evaluates by incident and short time-frame observations and a leader works hand-in-hand with the staff to improve the system.

A manager uses extrinsic motivation and a leader fosters intrinsic motivation. A manager makes new rules when one of his staff does something wrong and a leader works through individual problems with individual people.

Fixing the System

Everyone needs to take systems approach to their workplace. We need to quit blaming people for problems and start fixing the system. Most people work extremely hard at their jobs but many do not accomplish much. The major reason is a dysfunctional system, not incompetent people.

If a school system has been dysfunctional for years then all the people within that system, including students, will be dysfunctional. Parents blame teachers, teachers blame administrators, administrators blame teachers, and the cycle goes on. It's easier to blame problems on people because we have not been trained in a system approach. Remember, when you point a finger at someone, three other fingers could be pointing back at the real problem.

To bring about the massive changes needed in education we need to change our educational paradigms. We need to have a vision and explain that vision with mission and goal statements that are credible and worthy. We need to quit our internal bickering and get on with the task of teaching kids.

Teacher contract negotiations remind me of presidential elections. By the time we go to vote on the candidates none of the choices are very appealing because they have beaten up on each other for months.

During contract negotiations, school boards and administrators take shots at teachers who return the volleys and it goes on and on. Whatever confidence the public might have had in the school system in the beginning of the negotiations is wiped out. We love to shoot ourselves in the foot.

When we negotiated our last contract, a few teachers and I worked everything out amongst ourselves in three days. The previous contract took three years to finish. The teachers did not call in their "heavies" and neither did the administration.

Another paradigm myth is that teachers have easy jobs. Teaching is hard work. It's up to the leaders to make it emotionally and intellectually rewarding. When the system is right and the teacher is trained, it is joyous work.

Not having been a classroom teacher for a number of years, I recently started teaching management techniques, life cycle skills, and other college classes at night. I had forgotten how much work teaching really was. Not only extremely physically tiring, there's also a lot of mental stress involved.

Shared Responsibility

Deming believes 85 percent of change must come from the top. I did not originally believe in that theory, probably because it meant I had been operating in the wrong paradigm for years.

Now I firmly believe it. The top does not have to do everything, in fact quite the contrary. You have to empower people to share responsibility and give them guidance. Those who report to you have skills and competencies waiting to be tapped, if only you can bring yourself to do it. Once top individuals are trained in the new way, you have to get out of the way and let them run. This includes students.

Why we have always believed that the higher you are in the pecking order, the smarter you are, is beyond me. Many of us place employees in a total "you" mode. You do this, you do that, and check your brains at the door. We need to go beyond "you," or dependence, to "I," which is independence, and eventually to "we," or interdependence.

"I" mode superintendents take all the heat, carry everything on their shoulders, attempt to be all things to all people, develop ulcers at an early age, and die young. Superintendents need to get to the "we" level where everything is shared; both victories and defeat. Synergy needs to be nurtured.

For years we have taken knee-jerk reactions to problems. Because we do not allow enough time for training and cooperation, educators typically do not do much research. We need to listen to our customers. We need to do five- and 10-year surveys of our graduates to find out what kind of product we put out such as what did

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Mt. Edgecumbe's Mission

Editor's Note: Students and staff at Mt. Edgecumbe High School developed the school's mission statement. Excerpts follow:

t. Edgecumbe High School is a paradigm shift in philosophy to the usual high school program. Each curricular area offers innovative teaching methods that not only enhance opportunities for Mt. Edgecumbe High School students, but serve as models for other high schools.

Mt. Edgecumbe High School provides new and important education opportunities for Alaskan students. The school places high expectations upon students, administrators, and staff.

Program and curriculum are based upon a conviction that students have a great and often unrealized potential. The school prepares students to make the transition to adulthood helping them to determine what they want to do and develop the skills and the self-confidence to accomplish their goals.

Mt. Edgecumbe High School students are required to pursue rigorous academic programs that encourage students to work at their highest levels. Administrators, teachers, and other staff are required to keep current on educational advances and to initiate innovative, challenging, and stimulating classroom programs and activities.

Teachers and staff analyze issues to anticipate future social and economic needs of Alaska, such as Alaska's economic position among the Pacific Rim nations, and to integrate an educational approach to these issues into the curriculum. A strong curriculum in English, social studies, mathematics, science/marine science, computers/business, career exploration, Asian languages, and physical education is provided.

Special emphasis is placed on the study of both historical and contemporary topics specific to Alaska. Study of the history, culture, and languages of the Pacific Rim are a major curricular area and to the extent possible Pacific Rim studies are applied across the curriculum.

Vocational education is stressed through entrepreneurship and work study. Cottage industries are run by students. Traditional vocational education is offered on a limited basis.

Opportunities for leadership, public service, and entrepreneurship are integrated into the program, both during and after regular school hours. The school prepares students for the academic demands of being away from home and managing time effectively. Some students are selected for admission who are having a difficult time with their local environment. Staff work within available resources to help those students become productive citizens.

Mt. Edgecumbe High School as a boarding school offers students a wide range of support activities in both academic and residential programs, to assure the success of all students. To facilitate personal growth and decision-making skills, each student is assisted, guided, and challenged to make choices about future academic or technical schooling and alternative methods of making a living. Students are respected for their cultural background and diversity. Students and teachers are encouraged and expected to offer insights to increase the effectiveness of the school.

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we do right, and what skills didn't we teach that graduates needed. Are we afraid of the answers?

Preventive Medicine

I was a firefighter for years and believe I was fairly good at it. But for every fire I put out, it seemed like five more were started. Fire prevention is a much better way of doing business.

Research can be a key element in fire prevention. We need to understand that work gets done horizontally and not vertically. Being a silo manager and standing at the top of the silo and shouting orders to the worker bees below just doesn't cut it. Leaders understand their systems. They understand the internal and external customer relationships and how things really work and also how the work gets done.

Doing simple work-flow diagrams shows all the steps in a job process. If you are going to improve a system then you must understand how it really works. If it costs $50 to process a $5 purchase order in your central office, then you need to understand how to make that process more efficient.

Quality does not cost more, it saves money. Many of our processes are hand-me-downs from previous administrations. We just allow antiquated procedures to remain in place because we do not take the time, nor do we train central office staff, to learn how to do their work more efficiently. By training staff to do charts on processes, we can cut costs tremendously.

Here's a case in point. A quality team of three individuals consisting of a high school senior, our accountant, and myself decided to determine why the state procurement codes made it so complicated and expensive to order a copying machine. We were able to show graphically, through eight pages of flow charts, how the purchase of a $20,000 copying machine ended up costing $30,000 and required 20 months to process.

Has the state changed its antiquated and costly procurement system? No, but we at least feel we have done our part in researching a problem. The fix could take three years. Instead of verbally complaining, we graphically identified the problem.

I have complained about what the executive and legislative branches of government do to schools for years with no results. Now I know why. I was never able to graphically show the waste.

Legislatures, as our suppliers, can cause immeasurable grief, time delays, and waste. We need to train our suppliers with facts about the problems they can cause and how they can help us get out of our current dilemma.

If Honda Motor Co. has a problem with a supplier, they send a team of experts to train their suppliers to bring about a total quality product. The educational community needs to do the same thing.

Adding Flexibility

Another paradigm educators and the public have had for years is that if our schools become accredited then they must be good schools. That paradigm is not necessarily true. Accreditation teams many times do not look at the right things. Instead of counting the volumes of books in the school's library, they should examine how many books and which books are being checked out.

Educators should be measured for their synergy, not "lone rangerism." Programs need to be cross-curricular and not independent units of instruction. Teacher certification rules need to change. The best individual to teach high school business may be someone who has owned a business and not someone with 30 credits of educational methods classes. The system needs flexibility.

Students and parents have become so indoctrinated by grades they cannot see any other way to measure progress. Colleges should review students' portfolios, attitudes, attendance, and competency-based progress, not grades and SAT scores. It's potential that matters, not what you did in the past. That's like trying to drive a car by looking in the rear-view mirror.

The Joy of Learning

Kids need to be taught at an early stage the joy of learning, not the joy of an A. Kids in early elementary grades are all fired up about learning, but we remove a good share of that fire by the seventh grade, and by the time they graduate from high school, we are lucky if we find any burning embers left.

You can whip a horse and he will run for you for a while. Eventually the horse will quit. That is extrinsic motivation. Learning, teaching, and administration have to be intrinsic.

Quality is not more costly, it is cheaper. All the high school graduates that schools put out with extremely low academic and social skills are causing rework by the greater system. We need to do a better job the first time. A parent remarked to me once, "My child only has one chance for a good education."

Does everyone buy in to this kind of system? Can you put the system in place in a short period of time? Is this system easier? Does it take less time?

The answer is no to all of the above. You always will have lone rangers, Rome wasn't built in a day, there is no such thing as a free lunch, and be prepared to work smarter, not longer.

Glasser Comes to a Rural School

Melanie Fox Harris and R. Carl Harris

In its quest for quality, a Utah elementary school is making thoughtful improvements in every area of the school's operation, including communication, curriculum, and assessment.

> It's better to know some of the questions than all of the answers.
>
> —*James Thurber*

In August 1990, William Glasser visited our small, rural elementary school in central Utah to answer questions about improving our school. He came at the request of one of our innovative teachers, Chris Roberts, who had attended his workshops and initiated a telephone dialogue with him. Based on what he saw and heard, Glasser invited us to be one of the first six schools in his Quality School Consortium.

Expanding Our Vision

At Rees Elementary School, 15 teachers serve 300 students, ranging from handicapped preschool to K-5. The socioeconomic and ethnic mix includes predominantly lower middle-class Caucasians and a few Hispanics, blacks, Native Americans, and Polynesians. The 75-year old structure is bordered by several mobile classrooms and a spacious playground.

Our school has a growing reputation for self-examination and change. Because of the principal and faculty's initiative, we were invited to become a partner school in the Brigham Young University-Public School Partnership. As a result, we work on a continuing basis with university professors in preparing new teachers, promoting the professional development of our own staff, reforming the curriculum, and inquiring through action research into questions that we generate with our university partners (Harris and Harris 1992).

Over the last three years, our faculty had begun such practices as multiage grouping, experiential and cooperative learning, thematic study, and global awareness. These changes were interesting to Glasser, as they were living examples of the principles he suggested in *The Quality School: Managing Students Without Coercion* (1990).

After Glasser visited with parents and teachers at our school, we were all motivated to learn more about such quality principles as lead management and site-based management, control theory (Glasser 1986), and noncoercion. Some innovations were already in place, but our vision for doing even more unfolded as we joined the Quality School Consortium. Since that time, we've made changes in how we as teachers approach our work, in the school setting, in parent involvement, and in curriculum, assessment, and discipline.

New Outlook for Teachers

As teachers, we knew that change must begin with us, so we donated one week of our summer and raised funds to receive training through Glasser's Reality Therapy Institute. Through that training we've become sensitive to the language we use as we speak about ourselves, our school, and our students. For example, are we choosing to show anger in frustrating situations? Are we taking responsibility for a student's misbehavior? Are we continually aware of children's five basic needs: survival, freedom of choice, power, love and belonging, and fun? Some of the ways we've acted on our new awareness are to make control theory charts for our classrooms, to discuss the quality school bulletins at faculty meetings (Glasser 1992), and, in every area of the school, to explore the idea of quality with our students.

Big Friendly Groups

For 12 years Chris Roberts had successfully taught his special education students in self-contained classes. However, he realized that his students would progress better in a more realistic environment. After reading about multiage grouping (Clark 1986), Roberts enlisted the aid of teachers who shared his concern. With parent input and consent, our school grouped special education students with 3rd, 4th, and 5th graders.

Although multiage grouping appealed to teachers of the younger grades, they did not feel ready to convert their entire classrooms to such an arrangement. Instead, they designed a brief multiage experience (about 20 minutes) for 1st through 5th graders. At the beginning of each day, these youngsters came together in small cooperative groups, which we call Big Friendly Groups or BFGs. Each adult in the school, including the principal and the resource teacher, leads a BFG. After a while, we reduced the size of the groups from 18 to 6 students to promote more interaction and collegiality. We call the smaller groups Little Friendly Groups or LFGs, and the same teacher works

Courtesy of Rees Elementary School, [illegible]

After a teacher works with a Big Friendly Group, students move into their Little Friendly Groups for cooperative tasks.

with these. In other words, one BFG of 18 students contains three LFGs of 6. A teacher works with the BFG developing social skills and then directs students to move into their LFGs for continuing dialogue.

Each BFG selects a name and exchanges addresses so that members can contact one another outside of school. Some of the awareness-raising activities the groups have engaged in include: making wall banners to illustrate quality work, creating advertisements for building school quality, selecting group goals, planning service projects, and organizing volunteers to call and offer help to absent students. Even our PTA uses the groups to rotate students through a reading celebration activity. In short, BFGs have brought a sense of unity to the entire school, simplified schoolwide activities, and encouraged the use of more multiage settings.

Getting Parents' Input

Next, we sought to involve parents. At the beginning of the school year, before any work had gone home or any discipline problems had surfaced, we sent forms home asking their views of what their child needed most to succeed in school (fig. 1). Of all the educational goals on the survey, parents most often named self-esteem and self-confidence as the number-one priority for their child.

Second, we arranged parent-teacher conferences. At these twice-a-year scheduled meetings, teachers learn of parents' specific concerns—perhaps a health problem or the adjustment of the child to a death in the family—and parents come to understand teachers' goals and expectations. In addition to these formal conferences, parent-teacher teams meet whenever necessary throughout the year as specific needs arise.

Thematic Curriculum

To change a fragmented, lock-step procedure to a thematic, integrated curriculum, we've used several resources: *The World as a Total System* (Boulding 1985), *Education 2000: District 4J Integrated Curriculum and Planning Guide* (Shoemaker 1990), as well as *Educational Leadership's* theme issue on integrating the curriculum (October 1991).

To begin the process, each of the five teachers selected a theme for a six-week unit. The classes then rotated so that, by the end of the year, students had explored all six themes: power, communities, change, interactions, form, and systems. Reading novels, preparing portfolios, and writing with the process approach are some of the whole language activities the children engaged in. In mathematics, teachers' use of a self-paced program contributed to our 5th graders scoring 25 points higher on the Stanford Achievement Test than our expected range.

Assessing Quality

The next big change was in our assessment process. Our school has accepted Glasser's definition of education as "the process through which we discover that learning adds quality to our lives" (Glasser 1992, no. 11). Although we still administer the Stanford Achievement Test and end-of-the-year tests, self-evaluation is our primary means of assessing quality. We emphasize how quality is reflected in the life of each child by asking: "Is this quality work?"

To assess quality, we have designed specific observation tools for both teachers and students. For example, on a particular day a teacher may say to students, "As you do your writing today, I will walk around the room looking for active, interesting verbs. Check your work for quality in active, interesting verbs." To evaluate their reading, students keep Super Silent Reading logs in which they record the books they read, the time spent, and their assessment of the quality of their reading for that day. Students rate their reading on a scale of 0-3:

3 = focusing on reading the whole time and not disturbing others,

2 = focusing most of the time, if it is your very best effort,

1 = reading some of the time but disturbing others and not doing your very best,

0 = not reading at all and being totally off task.

If a teacher does not agree with a student's score, he or she will ask the student to justify the rating. If the student does not judge fairly, the teacher will ask the class for a response. Occasionally, a teacher will ask the whole class to report their participation scores in Super Silent Reading in order to initiate discussion of expectations of quality.

At our school, portfolios have taken the place of letter grades. Students assemble samples of their quality work in every subject area. Included in the portfolios is a one-page report describing such aspects as participation (for example, the number of poems a student memorized in each thematic area), math levels, and the completion rate for each area in the form of a narrative. The choice of how to display their learning about a theme area is up to the students. For instance, for the "power" theme, students may decide to make a poster about a famous person who used power in a unique way, create a video presentation, present a class report to the younger grades, or prepare an art project.

Figure 1

Parent Priorities Survey

Priorities for the education of ______________________
(student)

for the _______ school year

Please rate the following educational goals 1 through 10, according to your child's needs, in terms of what you feel is most to least important for the school to help you accomplish:

___ **Health and Physical Development**
Nutrition habits; physical fitness; strength, endurance, agility, and skill in sports, games, and life activities.

___ **Human Relations and Communication**
Getting along with others, leadership, cooperation, courtesy, respect, listening, speaking, reading, and writing.

___ **Identity and Individuality**
Self-esteem, self-confidence, self-discipline, responsibility, moral character, and the development of individual talents, gifts, interests, and abilities.

___ **Inquiry, Thinking, Learning**
Curiosity, eagerness to learn, study skills and habits, problem solving, creativity, and decision making.

___ **Science and Math**
Knowledge and skill in mathematics and the physical sciences.

___ **Arts**
Knowledge, skill, and appreciation for literature, music, dance, and the visual and performing arts.

___ **Work**
Initiative, self-motivation, self-direction, persistence, following through, and evaluating work; understanding of attitudes, knowledge, and abilities needed for various vocations.

___ **Responsible Citizenship**
Respect for and understanding of the workings of a democracy, appreciation for political processes and free enterprise.

___ **Environment**
Respect and maintenance of personal and public property, enjoying and protecting nature.

___ **Other** (describe):

Source: Stoddard, L. (1992). *Redesigning Education: A Guide for Developing Human Greatness*. Tucson, Ariz.: Zephyr Press, p. 32.

Democratic Discipline

The final area of change for our school has been discipline. In a quality school, the setting produces a climate for democratic discipline. As our desire is to build an educational community, we have *villages* instead of classes. Instead of a school, we call ourselves a *nation*—a learning nation. Instead of rules, we agree to respect ourselves, others, and property. Instead of boss-management, our teachers participate in lead-management. Teachers are the lead-managers, and students are the workers.

> Lead-managers understand that consistent, quality performance cannot be forced. It is only achieved by workers who are treated in the way all human beings want to be treated, which is to be able to satisfy their basic needs as they work. Lead-managers understand what these needs are and that they must be continually kept in mind as they manage (Glasser 1992, no. 1).

Displayed in every classroom is a sign that states: "All problems will be solved by the staff and students talking with each other without anyone threatening or hurting anyone else." When discipline problems arise, a student or a teacher, following the method of Glasser's Reality Therapy, asks: "What are you doing?" "Is that keeping our agreements?" "What's your plan?" "How can I help you with your plan?" If students cannot come up with a plan to make their behavior consistent with quality standards, they are given time to formulate one before they resume their activities.

> No matter what they do, the message from the staff has to be as follows: we run a caring school; teach useful skills and knowledge; give all a chance to improve what they do and therefore, to succeed; talk to all students in a warm and friendly way; teach them and encourage them to work together; demonstrate that we know what we are doing and that we believe it is good both for them and for us, and try as hard as we can to persuade them to begin to do quality work (Glasser 1992, no. 17).

However, a quality school is not a permissive school. Students who are not in good order cannot be in school until they are orderly. When students misbehave, a time-out area is designated. When students are ready to rejoin the class, they must have a plan for their future behavior and share the plan with the teacher and class, if necessary. If students are totally unwilling to respond with a plan after being in time-out for an extended period, they are suspended and put in the care of their parents. To return to school, students must write a plan for their behavior and bring their parents to school for an appointment with the principal.

Reaching for Quality

Quality is a topic about which we still have a lot of questions. Glasser suggests four conditions and four procedures for building a quality organization (1992, no. 18).[1]

Conditions:

1. Quality is always useful in some way and is never destructive.
2. Quality is the best that everyone in the organization, working both separately and together, can achieve at any particular time.
3. Quality can always be improved.
4. Quality always feels good; it is never destructive.

Procedures:

1. Education is a continual process.
2. Lead-managing is practiced as taught by Deming, Juran, and others.
3. Understanding is stressed, and control theory is practiced.
4. All those who work in the organization are treated as professionals.

As our small, rural elementary school moves toward quality, we are pleased with what we are experiencing. A special education student wrote in his journal: "I am doing more in school than I ever thought possible!" This statement applies to all of us.

We are also having a pleasing impact beyond our own school. Because of partnership with the university, our faculty has been invited to make presentations at other partner schools as well as regional and national conferences (Harris et al. 1991, Roberts and Harris 1991).

This dissemination has not only enhanced our own professional self-images but has also resulted in numerous inquiries and visitations from more than 70 educators. Other schools in a neighboring district are making plans to implement a similar model. In addition, our principal recently won a state award as the Most Innovative Principal of the year, and our school won a $10,000 Governor's Grant for Excellence in Education.

As we stretch in our reach for quality, we remember this quote from Oliver Wendell Holmes:

> Man's mind stretched to a new idea never goes back to its original dimension. ■

[1] See also the March 1992 issue of *Educational Leadership* on "Total Quality Management" (Bonstingl 1992, Blankstein 1992, Rhodes 1992).

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A Quality Approach to Writing Assessment

Joanne Andrade and Helen Ryley

An elementary school used the TQM technique of data gathering to improve its school writing program.

When teachers report student progress in writing at Centennial Elementary in Evans, Colorado, the faculty meeting starts to look like a rally. Cheers go up as groups plot improvements on the graphs and charts posted around the room. Colleagues share high-fives because they have not only reached goals, but they've also exceeded them. Staff members share an enthusiasm and focus that simply did not exist in the school before.

A Quality Perspective

Centennial began its Total Quality Management (TQM) work about a year ago after several staff members participated in an IBM Leadership Training Program, which addressed applications of the theories of W. Edwards Deming and TQM. With the help of an IBM consultant, the faculty at Centennial began to discuss assessment and data from a quality management perspective:

- What do we really do with assessments and the data we collect?
- How do we report assessment information to parents?
- How do we use the data we gather in our school improvement planning process?
- How will we use the data to help students meet intended learner outcomes?

Staff members decided that part of their problem was that they did not collect any data often enough for it to be really useful. In addition, they knew they lacked useful tools for collecting data and reporting what was happening in the classroom. Everyone needed concrete information, not just impressions.

Getting Help

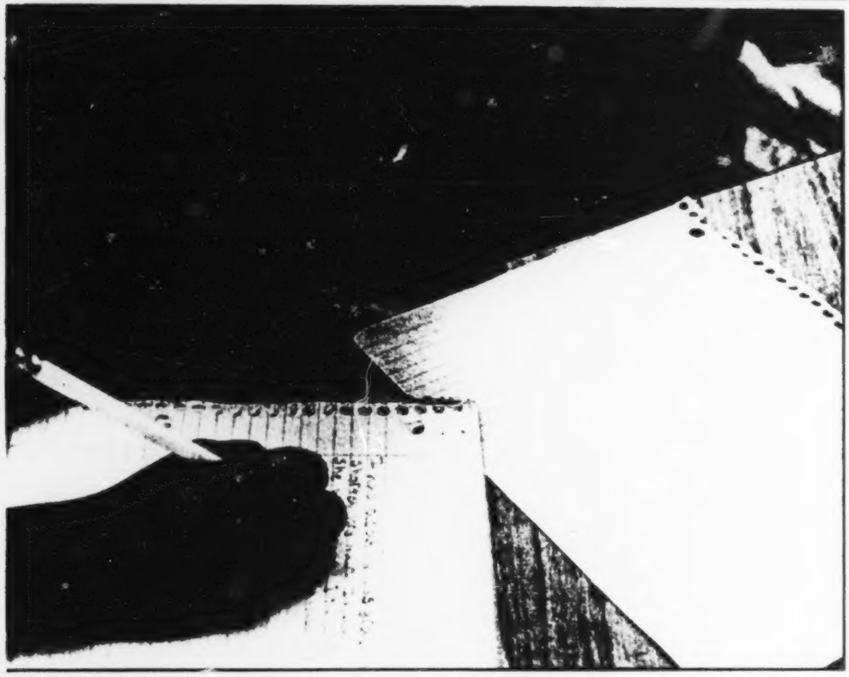
A business consultant from IBM, Patricia Smith, was very helpful in describing the task, creating the conditions, and guiding the work. She encouraged the staff to build a "House of Quality" for assessing progress, and she explained many TQM strategies, emphasizing how staff could look at information.

In one instance, she showed teachers how to connect writing progress to their action plans. She asked teachers to make a list of all the factors that kept students from becoming good writers. She then asked them to circle one or two items they could control and to incorporate them into their daily plans. She also explained how teachers could track progress on these goals through graphic displays.

Centennial's teachers agreed that they did have a good evaluation tool, a holistic writing assessment that could be used formatively. The district had adopted a seven-point rubric, based on one developed in Grosse Pointe, Michigan. This holistic writing assessment evaluates students on a scale of one to seven. A score of four is a demonstration of competency, but it reflects high competency, not minimum skills. It was decided to use this assessment to test students monthly, report results at meetings, evaluate progress toward goals, and plan new instructional strategies.

In the past, Centennial had taken a writing sample in April and sent it to the central office for raters to grade. Some writing assessment was also done before parent-teacher conferences. But teachers at Centennial did not track student progress together, nor did they share information or ask for help from one another.

Now, Centennial has a schoolwide goal of getting 95 percent of students on or above grade level in writing by the time they leave elementary school. Each month, teachers assess students and report the results at the faculty meeting so all can see how progress is being made toward the goal. The graphs and charts generate enthusiasm and a picture of improvement for everyone to see—including parents and the community. Because this work requires teachers to expose their productivity,



Centennial has a schoolwide goal of getting 95 percent of students on or above grade level in writing by the time they leave elementary school.

Increased collegiality and cross-grade collaboration are two benefits of the new writing assessment.

successes, and failures regularly and publicly, the experience needed to be put into place in such a way that it produced as little anxiety as possible. Data are reported and recorded by grade levels to relieve some of the pressure on individual teachers. The reporting, recording, and assessing focuses on continuous improvement with end results in mind.

What's Different?

The new reporting and recording progress has operationalized outcome-based education for us at Centennial; we can see results. Teachers test, regroup, teach, test, and regroup again.

Collecting and sharing writing assessment data regularly has also offered insight into what other students in other grades are doing. A culture of collegiality continues to grow at the monthly meetings. The process has encouraged cross-boundary, cross-grade collaboration that had not regularly occurred before. Now it's not uncommon to hear comments like this:

> "Some of my accelerated kids are ready for work on research skills. Are you teaching that yet? If I take some of your kids who need work on basic editing, would you take some of my students and give them the expanded opportunities they need?"

Teachers agree that it would be too much right now to gather data in every subject. Within a few months of starting the project, though, we discovered we had useful assessment instruments for student behavior, attendance, and a program integrating the work of the library/media center and research skills. It's clear that our data gathering has benefits beyond assessment: empowerment, collaboration, cross-grade planning and teaching, and a renewed energy for teaching and achieving results. As we add new assessments, we will find ways to manage the workload because of its benefits for faculty and students. ■

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A Move from Effective

A Principal Describes Her School's Application of the Deming Approach

BY NANCY DUDEN
Principal, Kate Sullivan Elementary School, Tallahassee, Florida

At Kate Sullivan Elementary School, we are in the midst of a transformation.

Using W. Edwards Deming's quality principles, our 44-year-old school which serves inner-city children and suburban children in Tallahassee, is shifting from a 20th century "effective" traditional school to a 21st century "quality" school. We are learning to think and act differently. We are beginning to make instructional decisions based on questions such as "will this help our students become lifelong readers, writers, and problem-solvers?"

One Kate Sullivan parent describes the contrasting experiences her two children received from the same teacher: "Three years ago, the focus in my child's classroom was on preparing students to face the challenges of middle school. Three years later, the focus has shifted significantly. Now you see students learning to set goals that are personal to them and to their success, and the teacher serving as a facilitator rather than director."

The older child experienced the effective school paradigm, whereas the younger enjoyed the benefits of a quality classroom.

Photos courtesy of Kate Sullivan Elementary School, Tallahassee, Fla.

A third-grade student at Kate Sullivan Elementary School reads to his kindergarten buddy as part of the school's collaborative approach to learning.

Looking Back

If you were to compare Deming's management concepts with those of our school four years ago, you would find evidence of his first point: "create a constancy of purpose." However, this constancy of purpose was devoted to the old effective school paradigm rather than to the continuous quality improvement paradigm.

Under the old system, our structure for teaching was primarily self-contained and heterogeneous, in which the teachers of each grade level planned together. Yet despite this initial cooperation, once back in the classroom the teacher became an island unto herself.

"Adopt the new philosophy," Deming's second point, was missing. At the time, curricula and end results such as criterion-referenced and stan-

BEST COPY AVAILABLE

to Quality

Third graders at Kate Sullivan Elementary School are participating in an archeological dig this year. The project involves active learning in which the students compare and analyze bone fragments uncovered in their digging.

dardized testing were the focus of our efforts. The classroom was directed by the teacher, who managed through the assertive discipline process and made use of extrinsic rewards.

These elements of the classroom, plus the direct teacher model for teacher observation evaluations, placed great emphasis on an inspection-type system. In contrast to Deming's third point, "cease dependency on inspection," our yearly school improvement plan focused on objectives with measurable outcomes. Clearly, our school improvement process was focused on end results rather than on Deming's continuous improvement model.

While Kate Sullivan did have a school improvement team with representatives from various constituencies, it did little to "break through the barriers," Deming's 9th point. Although there was a real commitment to school improvement based on shared decision-making, the process was not clearly defined. Furthermore, staff expressed frustration over the amount of time and number of meetings such an approach required.

In 1990, teachers were beginning to indicate their discontent with this model of leadership. This discontent stemmed from the lack of a shared vision and a directive leadership style. The school's yearly expectations, which were shaped around effective school research, did little to "drive out fear in the work place," Deming's 8th point.

First Steps

For the past three years, we have been changing from a good effective school to a quality learning organization.

The first step in our transformation was learning how to change. A task force, made up of teachers, the PTA president, the principal, staff, and district and university personnel began studying Deming's quality principles and developing a plan for restructuring based on them. This team recommended a plan for developing a shared vision and provided leadership in writing the collective group's vision and mission statements.

The current vision statement for Kate Sullivan is as follows: "The Kate Sullivan school family will demonstrate quality achievement and performance in a safe, nurturing, and caring education environment where each individual is valued and involved."

The team approach provided a framework upon which a culture for continuous quality improvement could develop. The following "core values" were established to help maintain a "constancy of purpose" for all restructuring efforts at Kate Sullivan:

- Individuals are valued.
- Teachers are professional educators.
- Parents are partners.
- Decision making is shared.
- Teachers are team members.

The task force's efforts focused on enhancing student learning by providing a quality learning organization for teachers as well as students. Applying Deming's "Theory of Profound Knowledge" and management point No. 6 to "institute training," we began an intensive inservice plan in the summer of 1991, developed by the principal and a team of teachers.

The overall goal of this intensive inservice plan was to establish a culture of continuous quality improvement that is student focused and based on learning principles. The faculty now feels encouraged to take risks within the classroom, to use innovative educational practices they know to be effective, and to use their knowledge and experience to improve the delivery of services both to the students and the community.

Today, our actions are guided by a long-range strategic plan. As a school we created a flow chart of our entire operation, which helped us to understand our interdependency and to break down barriers between staff. Teachers, parents, staff, community representatives, and the principal are engaged in activities that enrich the whole schooling process.

As a result, 85 percent of our teachers now feel strongly the school reflects "a high level of respect, trust, collegiality, cohesiveness, and caring," and more than 95 percent of the parents and teachers feel positive about the school's climate for learning.

We also developed a process for helping students to set their own learning goals, to develop an action plan, to keep track of their progress, and to make adjustments when necessary based on this collected data. For example, a fifth grade class has learned how to use flow charts and pareto charts to understand a process and to track their own progress.

The Student Council also has learned to approach problems in a systematic way by collecting data. Recently, council members complained the custodians were not doing an adequate job of cleaning the student restrooms and replacing supplies. The students were asked to collect data by charting the condition of the restrooms at different points during the day. Once the data were analyzed, the Student Council realized it was the students who were not properly caring for the facilities, and the problem was remedied.

Changing Climate

Teachers at Kate Sullivan have recognized the need for an environment in which students help each other and feel successful. One fourth grade teacher says of this new atmosphere: "The students now use children's literature in place of basal readers and choose the books that interest them. They no longer are stereotyped as high, average, and low readers. They think of themselves as successful readers. They have evolved into cooperative groups of self-reliant, confident children who take responsibility for their own learning in all subject areas. Competition has been replaced with cooperation among the students. The environment in our classroom is a place where children nurture and encourage each other in attaining skills and strategies for learning."

In order to create this new classroom environment, we needed to shift away from grading students. In kindergarten through second grade, teachers use informal observations, ongoing anecdotal records, and portfolios to evaluate student progress. In one fourth-grade classroom we have implemented a pilot program in which students use a computer to track their own language arts progress based on portfolios, self-appraisal, and pupil-teacher conferences.

As we move away from a paradigm based on curricula and "end results," we find we must face the challenge of developing alternative assessments. We are learning how to establish a quality system in which processes are stable. In our systems approach, outcome data no longer are viewed as "end" data. Instead, the data are part of the continuous improvement process.

We are confident as we continue our systems approach, focused on a continuous quality improvement process, we will develop measurements that help us to know if we are meeting our aim of developing life-long readers, writers, and problem-solvers.

Parent's Role

In many schools, parents may serve as barriers to a paradigm shift. At Kate Sullivan, they have been vital partners in the change.

We view parents as valuable customers and suppliers, as well as members of our learning organization. Since our respect for parents and our credibility with them have been part of our culture for a long time, it was easy to include them in our decision-making process. We have involved our parents in activity nights, open houses, a weekly newsletter, and a PTA board of more than 50 parents, teacher representatives, and me.

The PTA president has an office at Kate Sullivan and actually serves as a volunteer adviser to me. The number of recorded volunteer hours has increased from 2,848 in 1979-80 to more than 11,000 hours during each of the past three years.

Principal's Role

Perhaps one of the most significant aspects of this transformation is the change in the principal's role.

As principal, I took the risk of moving from the effective school's model of an instructional leader to become a facilitator of the change process.

I moved from an arena in which I was recognized as being very competent to an arena about which I knew very little, but I was willing to spend the time learning how to change because it was so important to Kate Sullivan.

My role will continue to shift from the instructional leader to the leader/manager of the continuous quality improvement process. It is already apparent to me I need less time for supervising and evaluating teachers and making and enforcing rules.

For example, we are moving away from the old evaluation paradigm by removing requirements for specific written lesson plans and taking advantage of a new system that allows teachers the freedom to plan in ways that are meaningful to them. Teachers now are active participants in discussions about implementing the quality principles in the classroom. I spend more time as a facilitator and commu-

Photos courtesy of Kate Sullivan Elementary School, Tallahassee, Fla.

At Kate Sullivan, students and teachers learn to use total quality tools to chart progress and develop systems for decision-making, above. A buddy program matches older and younger pupils to facilitate learning, right.

nity networker while maintaining a constancy of purpose by understanding the continuous quality improvement process and working with others to develop and maintain stable systems.

Unifying Framework

Since undertaking this major shift from an effective to a quality-oriented school, the teacher approval rate has increased 20 percent, the parents have become even more involved in their children's education, and the standardized tests scores have remained high.

Even more importantly, Kate Sullivan has a new unifying framework within which its community of learners can constantly move toward a common aim.

The author acknowledges the help of Alan M. Blankstein, president of the National Educational Service, and Heather Swain, coordinator of the National Educational Service Foundation, in preparing this article.

How We Applied Deming to Our Reading Program

Studying W. Edwards Deming's Theory of Profound Knowledge helped us begin an extensive study of the reading process we were using at Kate Sullivan Elementary School.

We were anxious to identify the key components and the systemic strengths and weaknesses of that process. We want our study to seek consensus on the methods to be used to develop lifelong readers.

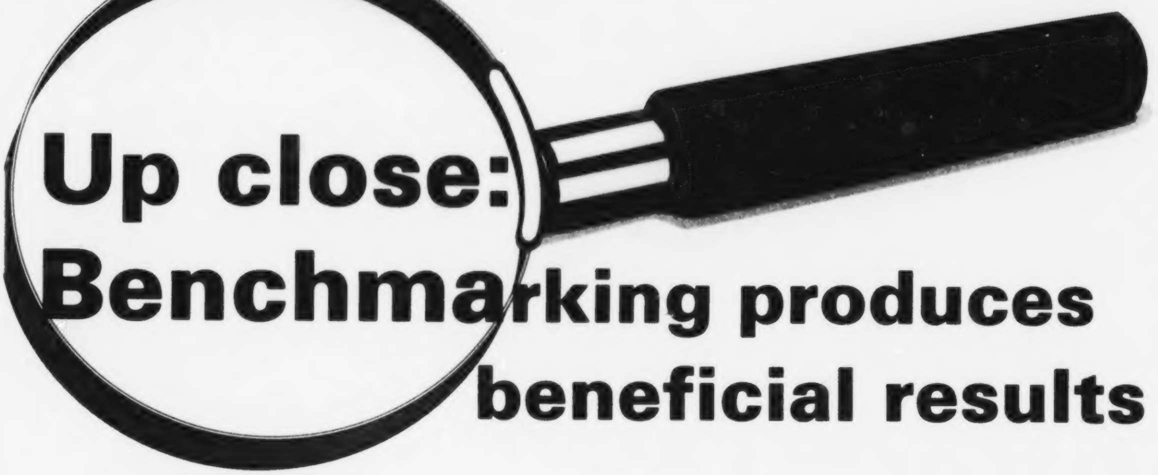
The qualitative data resulting from our interviews and observations are documenting that specific key components needed for a culture for continuous quality improvement are, in fact, transferring to the classroom.

We found these components to be most evident: a child-centered orientation; elimination of fear; teaming of teachers with each other and with parents; and tracking progress with performance data for each individual.

Here is a summary of the steps used by a team of graduate students (including a parent) in our study of the reading process:

- review literature;
- teachers and principal meet to clarify goals for process study;
- develop interview protocols;
- preliminary interviews with 12 teachers to identify important issues;
- develop further the protocols and instruments for data collection;
- collect data by (1) interviewing teachers to develop survey questions; (2) meet with teachers to discuss reading process; (3) observe reading instruction; (4) analyze existing student information; and (5) survey teachers, parents, students;
- analyze data and issues of the reading process.
- develop protocols for synthesis of first seven steps;
- synthesize first seven steps by (1) conducting a focus group of teachers on changes to the reading process and (2) conducting a focus group of parents on issues in the reading process; and
- analyze the findings of the study.

— Nancy Duden



Up close: Benchmarking produces beneficial results

**By Dr. Mike Dalton
Superintendent,
Maryville City Schools**

One of America's largest copier manufacturers discovered that foreign competition could sell a machine of equal quality for what it cost them to make their product.

Drastic improvement was needed to survive. To compete, this manufacturer turned to benchmarking and the logic that maximum improvement was attainable only when each of their procedures equaled or exceeded the best known in the world.

Today, this manufacturer, the Xerox Corporation, has reclaimed its position as a leader. At the same time, benchmarking —studying the best in an attempt to be the best—has become a familiar practice in business and industry.

Could benchmarking be applied successfully for school improvement and would benchmarking facilitate shared decision-making?

These were questions the Maryville City School System asked two years ago. Using information from Xerox, training and support by Aluminum Company of America at Alcoa and a $9,829 executive improvement grant from the State of Tennessee, we initiated a benchmarking project at each of the five schools in the system.

Each school faculty identified an area of need and then found the most successful program in that area to visit. Eight to 10 faculty members spent two days visiting and studying the successful programs. Vans were rented to use travel time for final planning and debriefing. Each of the five groups traveled together, ate together and stayed up late discussing what they learned.

Following the trips, many changes occurred at all five schools such as: initiating portfolios for all advanced students; teaching language through writing; a more "hands on" approach in math and science; and allowing students to embark on independent projects.

Other changes include: establishing a mentorship program for "at-risk" students; initiating summer reading and writing programs; and incorporating more computer use into classroom activities.

In addition, an evaluation survey of the benchmarking effort revealed these impressive staff development benefits: 1) Involvement in the decision-making process; 2) Opportunities for team decision-making; and 3) Leadership development.

"Every teacher was instrumental in the decision-making process," said one participant. We listed priorities as to what we needed to benchmark, ...places we could visit, ...what we were already doing that was successful and what we needed to change as a result of information gained on the trip."

From the beginning , these benchmarking trips belonged to the people making the trips—not the school board or central office. Because they were directly and personally involved in the decision-making process, they literally owned a part of the benchmarking grant.

"Every aspect of benchmarking was a team decision-making activity," another participant said. "Traveling with a group constantly allows team decisions to be made," echoed a companion.

Team decision-making, as opposed to individual decision-making became the norm. Teachers accustomed to focusing on their students, their room, or their grade, suddenly took a broader view and found it workable—even when controversial.

"A number of sticky issues were brought to the surface and discussed with maturity and tact," remarked one benchmarking veteran.

The benchmarking trips provided an environment for teams to function independently. Team decisions had to be made—and they were.

Finally, "It was interesting how each person assumed a leadership role at some time. I think we all had a chance to lead and follow," commented another benchmarker.

No doubt that happened in each group—and continues today. From these groups have come stronger and more contributing leaders at each of our schools.

Benchmarking produced tangible, beneficial results for all the schools in our system. But more importantly, it promoted and encouraged a new attitude in our faculties.

They became actively involved in decision-making. They participated in teams allowed to make decisions affecting a school or the entire school system. And finally, they provided leadership for making improvements in the system.

Transforming Schools Through Total Quality Education

Anyone who knows anything about public education knows that, in general, what Deming preaches – and what Toyota does – is not happening in our schools, Messrs. Schmoker and Wilson assert. The good news is that Deming's principles can easily be adopted.

BY MIKE SCHMOKER AND RICHARD B. WILSON

ABOUT A YEAR and a half ago, we decided to visit the Toyota plant in Lexington, Kentucky. Our school district's move to site-based management was in full swing, and we went to Lexington hoping to learn more about implementing that change. Neither our experience nor the research coming out at that time indicated that site-based management, by itself, held much promise for raising levels of achievement.[1] Something was missing. We assumed that whatever accounted for the widely touted effectiveness of decentralized management at Toyota would apply to schools as well.

We got far more from our trip than we bargained for. We believe that what we learned from Toyota could transform

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Illustration by Mario Noche

pubic education and make "equal opportunity" more than an empty phrase. It would enable America finally to reach that "forgotten half" of the student population that has traditionally been deprived of a high-quality education – the group that economist Lester Thurow tells us is pivotal to a nation's ability to compete in an international marketplace.[2]

Employees at Toyota work and think together in teams. To a surprising extent, these teams are self-managing: they meet regularly to identify areas for improvement, to set many of their own goals, to gather and interpret their own data, and to check progress and adjust efforts made toward attaining their goals. In this way, they do their own quality control.

Most of Toyota's ideas for innovation and improvement – thousands of them each year – come from the employees. In any given year more than 90% of Toyota employees submit at least one suggested *kaizen*, a Japanese word for a small but significant improvement. That fact is interesting enough in itself. But what is more interesting is that more than 90% of these suggestions actually get implemented.

A surprisingly democratic atmosphere prevails at Toyota. Management allows workers a considerable degree of autonomy. The chief function of management is to encourage and support employees, or "team members" as Toyota calls them, with guidance and with continual training and retraining. It is management's responsibility to ask the right questions rather than to tell employees what to do.

On the other hand, Toyota insists on something that is seldom practiced in schools: every decision, every improvement effort must be made collectively. These decisions are made within teams and by groups of teams, which, as members of the larger system, are given regular opportunities to interact. Whatever measures are taken are checked against data at every stage. Toyota believes that the key to improvement is knowing exactly how well – or how poorly – you are progressing in your efforts. A frequently heard refrain is "Give me the data." But these data are *never used to identify and blame* individual employees. They serve only to improve the overall system. No one has ever been fired from Toyota's Lexington plant.

In speaking with dozens of Toyota employees in Lexington-area bars, we learned that this approach is not only effective but appealing. It is no overstatement to say that employees seem to love their jobs. We found their enthusiasm startling. This is factory work, mind you. And yet we heard many comments like this one from an ex-jockey: "On Sunday nights, I look forward to getting with my team and hitting the ground running on Monday morning. No kidding."

The combination of management strategies used by Toyota, widely known as Total Quality Management (TQM), is based on the work of W. Edwards Deming, the statistician and management theorist whose success with Japanese industry has been so widely celebrated. And, as is inevitable with any large-scale movement, his theories are now being reexamined in some corners.

Deming's work emphasizes the advantages of teamwork, of investing in ongoing training for all employees to increase their value to the company, of an insistence that research and employee-gathered data guide and inform every decision and every improvement effort. As the title of a recent cover story in *Fortune* put it, these advantages account for "Why Toyota Keeps Getting Better and Better and Better."[3]

What Deming tells us is essential to the productive workplace is strikingly similar to what psychologists are learning. Professor Mihaly Csikszentmihalyi, former head of the Department of Psychology at the University of Chicago, is the author of *Flow: the Psychology of Optimal Experience*.[4] His extensive studies have recently caught the attention of educators – and with good reason. They describe those conditions that enable any of us – students or workers – to be most productive. But just as important, they point to that essential intersection between pleasure and productivity. One of Csikszentmihalyi's discoveries was that, given the right conditions, the best part of many people's lives is when they are engaged in their daily work. He cites the case of a factory employee who spends every moment of his day monitoring his own efforts and comparing them with his goals. For him, work is "better than anything else. It's a whole lot better than watching TV."

What accounts for such feelings? Studs Terkel's interviews, published in *Working*, paint a picture of work – especially routine labor – as "doing violence" to human beings.[5] What conditions ensure not only pleasure in work but productivity as well?

Deming's first and perhaps most important point is that "constancy of purpose" is critical to quality and innovation. Similarly, Csikszentmihalyi's studies reveal that people have to feel that their work is purposeful, that it has some meaning beyond collecting a paycheck. He also discovered that people work with more commitment toward collective goals than toward merely individual ones. In addition, at work as at play, we need to see that we are getting better at what we do. Because of this focus on constancy of purpose, continuous learning and a sense of improvement are essential to sustained effort. Finally, and perhaps most interesting as regards the work of Deming, this sense of improvement must be both palpable and precise. We need accurate and "constant feedback" that tells us what is working and what is not.[6]

Even a rough acquaintance with Deming makes it clear that these are the central elements of his work. The parallel between Csikszentmihalyi's work and Deming's, combined with the success of Deming's methods in industry, should counter the charge that this fascination with TQM is merely another fad. If TQM seems to be failing in some settings, the failure can be attributed to what employees in private industry not infrequently tell us: management has adopted the trappings of Deming's work without being willing to redistribute power and place unprecedented levels of trust in employees.

Anyone who knows anything about public education knows that, in general, what Deming preaches – and what Toyota does – is not happening in our schools, not by a long shot. The good news is that what happens at places like Toyota comes down to a few simple, very doable things. *Fortune* recently referred to Deming's principles as "starkly simple and effective."[7] In visiting and studying some of the most dramatically improved schools in the country, we have seen the success of these "simple and effective" methods already being demonstrated. And the schools we studied have made these changes with little or no additional infusion of funds.

A PROMISING PATTERN

If we avoid being rigid or doctrinaire about the essence of Deming's philosophy and principles (as many who talk about them unfortunately are), an exciting and promising pattern emerges. We suggest that educators study Deming because his work codifies precisely what our schools need most. But we are further inspired by the fact that, to an impressive extent, many schools are already successfully implementing Deming's basic methods and principles, some more consciously than others. The challenge for us is to study these successes, wherever they occur, and then to replicate or adapt what we learn. The experiences of these schools give us a promising and proven pattern on which to base large-scale improvement efforts.

Central Park East. At one extreme, consider the well-known case of the Central Park East schools in East Harlem, the poorest neighborhood in New York City. Ninety-five percent of the mostly black and Hispanic students from Central Park East Secondary School go on to college. They do extremely well on standardized tests. Though Central Park East is part of a "choice" consortium in New York City's District 4, its students are in no way hand-picked: 70% of them come from the immediate attendance area.

After visiting Toyota, our visit to this school and our conversations with its director, Deborah Meier, were all the more interesting. The policies and practices she described seemed to bear an uncanny resemblance to some of Deming's teachings. But Meier had not heard of Deming when we spoke with her. If anything, the principles of Theodore Sizer's Coalition of Essential Schools more explicitly govern operations at the Central Park East schools.

Yet, in the most important respects, Meier and her teachers have created a school environment that conforms in every important way to Deming's major principles: a democratic atmosphere, supportive leadership, team and collaborative effort, a clear and unified purpose, and an insistence on regular analysis and evaluation of student performance data as a basis for continually improving on past practice to serve the school's customers.

Deming's first point of emphasis is to establish a clear and energizing sense of purpose. At Central Park East, that purpose is to help students cultivate the "habits of mind" that will enable them to succeed. Every classroom has a poster, prominently displayed, with the teacher's interpretation of those habits: variations on the ability to infer, analyze, synthesize, and extrapolate.

> Neither employees nor students can work imaginatively and eagerly when they fear being blamed for their shortcomings.

Like Toyota's Fujio Cho, Meier regularly meets with grade- and department-level teams. She simply asks what they are doing and calls for "evidence, evidence, evidence" that tells whether they are – or aren't – succeeding. Like Toyota's employees and managers, she and her staff focus on "data," which in their case might be how many students are succeeding on a given task or project. She examines portfolios and asks about what is coming up. She sees her role as one of "constantly articulating the school's purpose" while helping teams of teachers ensure that all effort and activity support that purpose.

Meier and her faculty do not succeed through intimidation or by assigning blame. Another of Deming's points is to "dispel fear." Neither employees nor students can work imaginatively and eagerly when they are in fear of being blamed for their shortcomings.[8] People need freedom and support in order to do work that they can take pride in. Conversations with teachers at Central Park East confirm that Meier provides that support. Ricky Harris, a humanities teacher, looks forward to Meier's classroom visits, saying, "The woman is brilliant; I always listen to a lot of what she tells me."

Meier's visits and the regular team meetings provide not just purpose, but feedback – the regular and precise evaluation that enables teachers to know if they are on the right track, if the activities they are providing students are the best that they can offer. Meier and the teams examine portfolios regularly, and each spring business and community members – a school's "external customers" in the Deming lexicon – are invited to the school to evaluate the work in portfolios. The information from these public displays of student performance – "fishbowls" as they're called – then guides the following year's improvement efforts. Central Park East has conducted its own research to refine methods of reading instruction.[9] And the staff is now formalizing a study that has been going on less formally for years: tracking the areas of study that graduates, now in college, feel most and least confident in. This feedback will enable the school to continually refine and precisely adjust its efforts for its most important customers.

Central Park East doesn't waste time on feckless "mass inspection," which violates Deming's point about dispelling fear. Instead, students are trusted to do much of their own quality control. Meier says that the students must "convince us that they are ready to graduate." This is the ethos of trust and respect that prevails at Central Park East. Teamwork, collaboration, and Deborah Meier's relentless "articulation of what we're all about" ensure the "continuous improvement" that is at the heart of Deming's philosophy. The results speak for themselves.

Comer School Development Program. This program was begun in 1968 by psychiatrist James Comer as a joint effort between the Yale University Child Study Center and the New Haven Public Schools. Like Deming, Comer emphasizes the importance of recognizing that change and improvement require a "systemic" understanding of the relationships between members of the school community, including parents and social service agencies. For Comer, as for Deming, students and employees work harder, smarter, and more happily when issues of relationships are addressed, when trust and a democratic atmosphere are carefully sustained.

Comer takes a scientific approach to

his work. And the resemblance to Deming's essential tenets is striking. Just as Toyota involves all employees in decisions that affect them, Comer involves all staff members and all parents "at every level of school activity." Problems and challenges are tackled through a nine-part process that resembles Deming's PDSA (Plan, Do, Study, Act) cycle. Though more elaborate, Comer's process contains the same basic elements as Deming's: systematic identification of the school's goals; planning; and then regular "assessment" of effort and progress, followed by carefully designed modification that results in improvement. Like Deming's PDSA, Comer's process is a true cycle that promotes *continuous* improvement. It takes both effort and results right back to the planning stage, where measures can be continually refined and new problems found and addressed.

There are further similarities between Comer's concepts and Deming's emphases. Comer's "staff development" echoes Deming's insistence on "training, retraining, and education."[10] Comer's "three guiding principles" include "no fault" problem solving; Deming insists that we improve processes rather than blame people and gives "accountability" a human face. Two other Comer principles, "consensus decision making" and "collaboration," are pillars of Deming's teachings that account for Toyota's success.[11]

Though Comer's initial efforts in New Haven took until 1986 to bear fruit, a recent Comer school saw remarkable improvements occur in just a six-year period. At Columbia Park Elementary, in Prince Georges County, Maryland, achievement test scores rose from the 35th percentile to the 98th percentile. This occurred between 1986 and 1991.[12]

Northview Elementary School. A more explicit example of Deming's influence is Northview Elementary School in Manhattan, Kansas. This school, which serves a lower-middle-class community, was one of the featured subjects of a public television special, "Learning in America: Schools That Work," narrated by Roger Mudd. Data provided by principal Dan Yunk show that, between 1983 and 1989, fourth-grade reading competency scores went from 59.5% to nearly 100%; sixth-grade scores rose from 41.7% to 97.1%. Fourth- and sixth-grade math scores went from 70.3% to 98.6% and from an abysmal 31.9% to 97.1% respectively.

In a telephone interview Yunk spoke of how his understanding of Deming helped him to empower his employees to bring about effective change. Not only did Yunk establish a purposeful, democratic, and collegial environment, but he also insisted on regular team analysis of achievement data to isolate problems and promote improvement. One of Deming's principles is to "break down barriers between staff areas." Only when areas and departments communicate can they solve the kinds of complex problems that require an understanding of the interdependencies that affect everyone's efforts. When statistical analysis of math scores revealed that there had been a drop in third-grade students' ability to solve certain kinds of math problems, second-, third-, and fourth-grade teams were brought together. Once assembled, they discovered year-to-year inconsistencies in emphases in the math curriculum, which the teams were then able to address. Subsequently, the scores rose significantly.

Johnson City Schools. Another case of Deming's influence can be seen in the Johnson City Schools in New York State. This enormously improved school district has become something of an educational mecca, one of the most-visited school districts in the country. Although the Johnson City Schools have only recently come under the direct influence of Deming's theories, those theories easily align with what has been going on in Johnson City for years.

In this blue-collar, lower-middle-class community, the schools were among the lowest performing in the country until the early 1970s, when a new superintendent, John Champlin, arrived. Deming believes that knowledge drives improvement, though it is human nature to resist new knowledge. John Champlin started his improvement effort by simply distributing and discussing educational research with the faculty of one school.

After some initial resistance, teachers began to see that they might be capable of helping students reach far higher levels of achievement. There was something exciting, for instance, in Benjamin Bloom's startling but well-substantiated claim that, under the right conditions, more than 90% of students could achieve at levels of excellence as high as those of the highest third.[13]

During the first year, there were measurable gains in both morale and achievement at the school where Champlin focused most of his efforts. By the end of the third year, gains could be seen districtwide. After six years, 70% of Johnson City students were achieving at or above grade level – up from 45% to 50% when Champlin arrived. By 1986, 77% of Johnson City graduates were receiving New York State's prestigious Regents diplomas. (The state average for Regents diplomas awarded in a school district was 44%.)

For all its success on the state tests, the district continues to strive for improvement. The current superintendent, Al Mamary, has sought state approval to launch an initiative to suspend the district's focus on standardized test scores and move toward the development of authentic and performance-based evaluation. Mamary and his associate superintendents, Larry Rowe and Frank Alessi, have worked to create a comprehensive school improvement program they now call the Outcomes-Driven Developmental Model (ODDM). It includes an emphasis on noncoercive leadership and attention to both internal and external research and to data on students, schools, and the district. The statistically minded leadership routinely asks teachers and teams of teachers not "how well" something works, but how many students are meeting quality standards on units and projects. School leaders use such process data as a basis for taking corrective action.

Carefully conducted pilot studies have led Johnson City to adopt such practices as diagnosing students' math skills in October and then having students attend tutoring and enrichment sessions outside of regular school hours if they need extra help. This scheme has resulted in an exceptionally high percentage of students who have truly mastered grade-level math skills before being promoted to the following grade. The district is now gathering data on a pilot project to eliminate age-grading at the primary level.

This preventive, frequent assessment of quality at every stage of the process is pure Deming. And it happens in language arts as well, where teamwork, diagnosis, and careful alignment between schoolwide and grade-level goals have led to a focused and effective program. Student composition skills are regularly assessed – often by teams – and assistance is then provided for students to ensure their success on the New York Competency and Regents exams.

All of these efforts are enhanced through a carefully targeted "program of training and retraining," to use Deming's language. The training equips individuals with precisely those skills that they and the district agree have the highest priority. As Champlin says, "We were doing Deming before Deming was in style."

William Glasser is well-known for wanting to show educators "how Dr. Deming's ideas can be brought undistorted into our schools."[14] He refers to the schools in Johnson City throughout his educational best seller, *The Quality School*. For Glasser, these are "the best quality school models around."[15]

Henry Levin and "Accelerated" Schools. An especially interesting application of the use of Deming's principles can be found in Henry Levin's "accelerated schools." Levin took classes from Deming, whose influence can be seen in Levin's six-step "inquiry process," which closely resembles Deming's four-step PDSA cycle. Levin himself calls the inquiry process "dominant accelerated practice." Like Deming's PDSA cycle, it is intended to help teams focus carefully on each essential aspect of solving – rather than merely discussing – a problem.

Levin set out not only to see what made good schools good, but also to create something that could make poor schools – indeed, the worst schools – much better. Though he carefully admonishes us not to expect quick success, Levin's program has already been immensely successful at the most difficult and failure-ridden schools, turning some of them around in as little as two to three years with little or no infusion of funds.

At schools such as Daniel Webster in urban San Francisco or Hollibrook Elementary in Houston, Texas, every effort is made to ensure both that students enjoy their studies and that they succeed at them. The object is to "accelerate" rather than to remediate students – to enable them to catch up with or get ahead of what they must learn, rather than to slow instruction down to a dull, destructive pace – a practice that has never been effective.[16] Like Deming, Levin believes that we vastly underestimate the talents and abilities of our students and teachers. He would instead have us "build on strengths" that students and teachers bring to the classroom. If artfully tapped, these strengths can result in far higher engagement and improved levels of achievement.

Just as Toyota adheres to Deming's teachings about the importance of bringing together members from throughout the system to solve problems, Levin emphasizes group decision making that represents the "school as a whole." This is the only way to muster the consent and enthusiasm that are essential to one of his cardinal concepts: "unity of purpose." Like the "constancy of purpose" urged in the first of Deming's 14 points, unity of purpose animates all the other principles of Levin's accelerated schools.

Once purpose is established, "constant improvement" is pursued by what Levin calls "taking stock," gathering data that enable teams (or in accelerated schools, "cadres") to intelligently isolate problems of the highest priority and then to propose solutions. These solutions are in turn guided by reference to "the data."

Apparently, this approach works. Scores on standardized tests at Daniel Webster Elementary went from 69th to 23rd in the district in only three years. At Hollibrook Elementary, 85% of the students enter without being able to speak English. In 1988 fifth-graders were scoring at the 3.7 level in reading and language arts. By 1991, after Hollibrook instituted accelerated school processes, they were scoring at about the 5.3 level. In math the average fifth-grader is now scoring a year above grade level. Staff members at Hollibrook did this with "no infusion of funding to make the difference." Even more interesting, they did it not by emphasizing dull test-preparation activities, but rather by emphasizing "hands-on programs and enrichment" that "exposed all children to the richest experiences."[17]

Mt. Edgecumbe High School. Perhaps the most explicit example of a "Deming school" is Mt. Edgecumbe High School, a public boarding school in Sitka, Alaska. The majority of its 215 students are Native American, and about 40% are at risk or have had academic problems before coming there. Though superintendent Larrae Rocheleau cautions that Mt. Edgecumbe is not a "Deming school," this is chiefly because there are still some faculty members who are not participating in the program.

Teacher David Langford, now a consultant, came back with some radical new ideas after a leave he took in Phoenix, Arizona. He saw the application of TQM less as a school-management strategy than as a classroom-level strategy. He started a business course called "Continuous Improvement." He eliminated grades but would no longer accept anything less than what he and his students regarded as quality work – a practice that William Glasser advocates. And he began to take extraordinary measures to ensure that his students participated in work they found meaningful and applicable to what they wanted from life. Langford would spend the first week of any course establishing purpose and helping students to understand the worth of what they were going to study and the contribution it would make to their personal and career goals. Many Mt. Edgecumbe teachers picked up on this idea and still make it a routine part of their curriculum. This is not unlike Glasser's remark that "we should explain much more than we do now . . . about why we teach the things we do."[18]

Just as economist Lester Thurow suggests that we tie our national curriculum to the country's need to compete in seven key industries, so Mt. Edgecumbe focuses its curriculum on the "future social and economic needs of Alaska."[19] Every effort is made to regard students as workers, as self-managers. As a result, discipline referrals have all but disappeared. Statistical analysis has also helped Mt. Edgecumbe staff members to find the root causes for tardiness, and adjustments to the system have resulted in reducing late arrivals from an average of 34 to an average of just 10 per week.

And there are other significant dividends when students assume the responsibility of managing their own learning. Teachers don't mind supervising as many as 100 students at a time, which creates more time for staff development, planning, and collaboration: an additional three hours a week so far. Their ultimate goal is to arrange things so that they can spend 50% of their time planning and collaborating in teams – without hiring any extra staff members. In keeping with

Deming's belief that people desire to do quality work, grading has been eliminated and replaced in many classes with lists of "competencies," the mastery of which students negotiate with teachers.

Academically, the results are not yet conclusive. Standardized test scores are up only slightly. But there are other measures of success to consider. Whereas very few Mt. Edgecumbe students used to go on to higher education, about 49% now attend some form of postsecondary school. Whereas only 2% of Native American students graduate from the University of Fairbanks, evidence indicates that a far higher percentage of Mt. Edgecumbe students are doing well in college and are expected to graduate.

Though Mt. Edgecumbe was once known for its high rate of student turnover, the percentage of eligible students returning to the school is now nearing 100%. Dropouts have been reduced from 40% to about 1% per year. And teacher turnover, once high, is now nearly nonexistent. At Mt. Edgecumbe, they must be doing something right.

SHORT-TERM BENEFITS

This point has to be made carefully: Levin, Champlin, Deming, and others are quick to caution that their programs are not quick fixes and that we shouldn't expect results in less than five years. At the same time, Champlin points out that morale at the first school he worked at improved dramatically and that there were academic gains at that school by the end of the first year. There were districtwide gains at the end of only three years. Two of Levin's major efforts saw enormous gains within two to three years.

Another interesting case of positive results in the short term is that of George Westinghouse Vocational and Technical High School in downtown Brooklyn, New York. Two of the first 23 areas targeted for improvement were class cutting and course failure. By meeting in teams, identifying root causes, and then keeping statistical records, the staff was able to reduce class cutting by 39.9% in just six weeks. The school then confronted its greatest challenge: the fact that 151 students were failing every course. Staff members brought the tools and techniques of TQM to bear on the problem. Everyone, including parents, was involved in the improvement effort. Parents of failing students were asked to sign contracts saying that they would make extra efforts to ensure improvement. Data were gathered from each student, and the chief reasons for the high rate of failure were determined: lack of study and a need for tutoring. A noontime peer-tutoring program called "Lunch and Learn" was established.

The results at George Westinghouse point up what can happen when people pool their intelligence to assign priorities and then deliberately tackle problems. Between January and June 1991, the number of students failing every course fell from 151 to 11 – a 92% improvement in one semester.[20]

Nearly a decade after the publication of *A Nation at Risk*, the education reform movement is still marked by rancor, ignorance, and stagnation. We have yet to begin systematically implementing the best of what we know, even though scholarship increasingly points to an emerging pattern.[21] Worse still, there doesn't even seem to be a movement afoot to help that occur. Only occasionally does the acknowledgment surface that anything like a promising pattern is emerging from beneath the rubble.

Instead, ideological battles between warring camps have reduced the "great education debate" to what George Kaplan recently called "education's thousand points of noise."[22] Education journals remind us regularly that we still manage schools as we always have and that we still rely too much on such discredited methods as drill, worksheets, and prepackaged lessons that only ensure mediocrity, boredom, and the continued and costly failure of our lowest-achieving students.[23] The waste, Deming might say, is appalling.

Deming's methods are not only effective in helping us to manage schools, districts, and classrooms; they can also help us to manage and use knowledge to our fullest advantage. We now know how to all but ensure that students enter the second grade reading on grade level; we have developed methods of teaching advanced mathematics that enable us to reach far higher percentages of students than we typically do. Deming's methods would not allow us to ignore these facts. The heart of Deming's philosophy is an insistence that management take pains to create a positive and productive climate in which employees are continually kept abreast of the most effective methods and practices – a climate in which they help one another to adapt, replicate, and refine practices.

Deming's work provides us with a proven plan that puts in place – and then continuously improves upon – what works. This is the kind of flexible and attractive program that education needs most today. Rather than divide ourselves along ideological lines, we need to promote broad, concerted participation, where the reigning controversies are not ignored but must take their proper place on our agenda of problems to be solved and practices to be improved. On a national level, Deming's work would complement that of Lauren Resnick and Marc Tucker as they seek to develop an enlightened set of national standards and assessments.[24] These standards and assessments would drive the kind of meaningful activity and help create the sense of purpose – even national purpose – that are the heart of Deming's philosophy.

AMPHITHEATER SCHOOLS

Excitement about these methods is growing here in the Amphitheater Public Schools. We firmly believe that Deming's management practices will lead not only to improved student achievement but also to increased efficiency in every department, including those nonacademic areas that truly support the instructional program.

We are convinced that the dialogue these methods engender will have profound, if indirect, benefits for us. The discussions will bring us face to face with those structural barriers that are so difficult to see but so essential for us to acknowledge if we are to change: our grading and assessment system, the practice of age-grouping, teacher evaluation policies, our assumptions about what students are capable of, employee compensation, the traditional school calendar, and the conventional certification policy. Deming's principles and practices can create a collective demand for structural change, driven by a desire for improvement on the part of those who are the real ministers of change – the employees on whose expertise we must rely.

The potential for fundamental change

is both the strength and the vulnerability of Deming's principles. If the process generates fear because of the depth of the changes it implies, it might be resisted. With this in mind, we are taking an evolutionary approach in our district to ensure that stakeholders understand the principles and their theoretical underpinnings. We make our case as clearly as possible at every stage of the process and constantly distinguish between a manufacturing plant and a school setting. To this end, all administrators, supervisors, and key representatives of our teacher union have attended extended training sessions.

The school board has heartily endorsed this effort, which will require a change in the role it plays. Board members have also attended workshops and formally adopted a set of basic concepts based on Deming's principles.

Several departments and some of the schools in the district have volunteered to pilot the implementation of Deming's principles immediately. Teams within each volunteering school or department have received intensive training and will now train other staff members in the unit and serve as a corps of consultants who will be available at a later date to other schools and departments. Members of these initial teams will also constitute a district-level oversight team.

For this school year, each pilot program has selected at least one goal. The teams will now gather data and then regularly analyze and make adjustments to their processes in light of the data. As we embark on this journey, we are establishing regular contact with local industries that are also making the transition to Deming's philosophy. We hope that industry and the schools can help each other avoid some pitfalls and can learn from each other's experience. We hope this will develop into a collegial relationship that will enhance everyone's efforts.

We agree with *Fortune* that Deming's methods are at bottom "starkly simple and effective" and that school improvement doesn't need to be an impenetrable mystery. Collaboration and a respect for information almost inevitably promote improvement. Much could be accomplished on the local or national level by simply asking questions such as, Are school employees working together collaboratively on the school's most pressing academic priorities? What data have been used to determine these priorities? Are we making progress toward the school's most important goals? What is working? What isn't? How can we do better?

If we ask such questions, fits and starts notwithstanding, we will be on our way toward real improvement of this country's schools and of its competitive ability. In addition, we'll be moving toward a climate in schools that is immeasurably more humane and productive. We believe that Deming's philosophy and methods best codify what the schools need most if they are to improve substantially: the ability to organize and act on the best of what we know and are continuing to learn.

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One District's Quality Improvement Story

Patricia E. Abernethy and Richard W. Serfass

Attendance problems in the high school were the first issues a New Jersey school district tackled after joining a statewide project to encourage continuous improvement in education through Total Quality Management.

Total Quality Management can help school districts systematically bring about change. Its holistic approach accents systems theory. Its tools provide vehicles for data analysis and decision making. Its principles accent the importance of each person in the system to strive for continuous improvement.

The City of Burlington Public Schools' involvement with Total Quality began in March 1992, when the Education Focus Group of the Quality New Jersey project selected our district to participate in a pilot program. Quality New Jersey was founded in 1988 to encourage the use of Total Quality Management methods throughout the state for "the continual improvement of industry, service, health care, education, government, environment, and quality of life in New Jersey."

In all, six school districts, Brookdale Community College, and the Urban Division of the Department of Education are participating in the program.[1] We were all chosen because of our interest in learning about Total Quality and our representation from urban, suburban, and rural districts across the state. Each local Quality Improvement Leadership team consists of five members: the superintendent, a business administrator, a district curriculum supervisor, the building principal, and a teacher (or comparable positions from the college or department of education). Each team has made a two-year commitment to the program.

Businesses sponsoring the Total Quality Learning and Support Program are AT&T, Bellcore, PSE&G, and Xerox. All training costs (instructors, meals, guest speakers, facilities) for the program are furnished by our sponsors. The training—five events are scheduled each year of the program—is structured around the principles of Total Quality Management, Process Quality Management and Improvement, problem-solving techniques, quality tools, and team building. Trainers from AT&T and Bellcore conduct the sessions, which have been jointly planned by business and education representatives.

Every month facilitators from the business sponsors visit the local Quality Improvement Leadership teams to assist us in determining improvement opportunities and in implementing them. They also instruct the teams in using the basic tools of Total Quality as specific needs arise in the improvement process. These tools include checksheets, graphs, Pareto charts, Ishikawa or fishbone diagrams, histograms, scatter diagrams, and control charts.

Our Quality Improvement Story

The improvement issues the City of Burlington Public Schools face reflect the needs of a small urban school system with 1,500 students. Being involved in the program gives us an opportunity to observe these issues more holistically and provides us a variety of tools to assist in our analysis. The first issue we decided to address was attendance at the district high school. To do so, we used a detailed problem-solving process, called the Quality Improvement Story. While a number of businesses now use this process, it was Walt Disney who invented the storyboard during his development of *Snow White*. Using a large wallboard, Disney and his staff illustrated the macro-events of the story, which served as a guide for further development of the story's micro-events.

Having studied how to develop Quality Improvement Stories with AT&T facilitators, our team used the seven-step process to apply Total Quality principles and tools to our own improvement efforts.

Step 1: Reason for Improvement

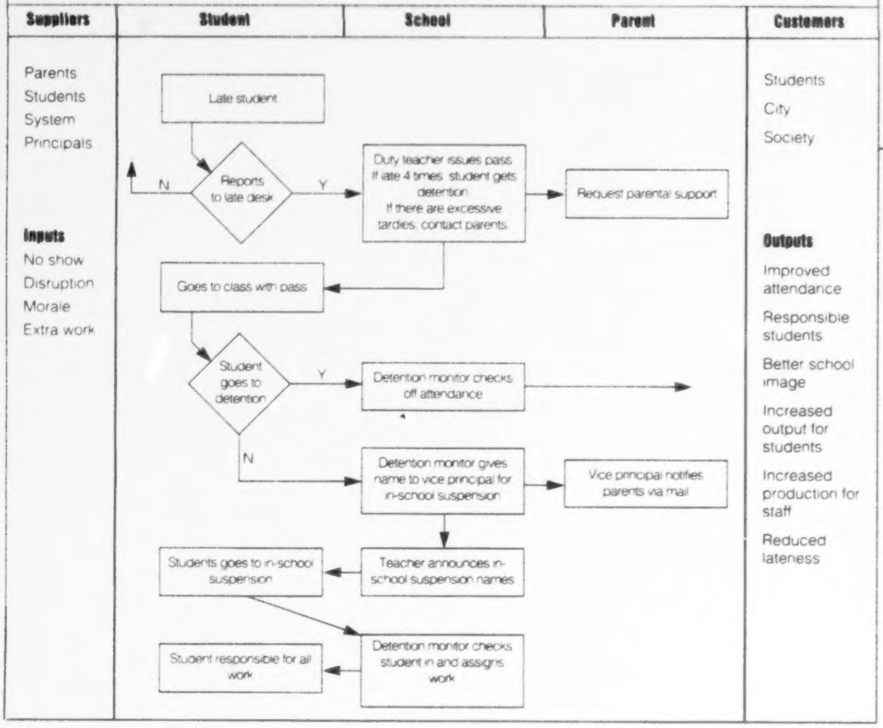
As our theme for improvement, we chose: *decrease high school tardiness and increase attendance*. At that time, high school attendance fluctuated from 85-92 percent.

Using a *block diagram* (or process flowchart), we depicted the tardy process, outlining the steps for the student, the school, and the parent (see fig. 1). We discussed "inputs" and outputs," "suppliers," and "customers" of the process. We wanted to determine whether any students marked absent may have merely been tardy, resulting in inaccurate attendance records. After extensive discussion, we recognized the need for more quantifiable information:

- tardiness data from September 1, 1991-April 30, 1992;
- the number of students marked absent who were actually just late;

Figure 1

Block Diagram of Tardy Process in the School


Suppliers
Student
School
Parent
Customers
Parents
Students
System
Principals
Inputs
No show
Disruption
Morale
Extra work
Late student
Reports to late desk
N
Y
Duty teacher issues pass
If late 4 times, student gets detention
If there are excessive tardies, contact parents
Request parental support
Goes to class with pass
Student goes to detention
Y
Detention monitor checks off attendance
N
Detention monitor gives name to vice principal for in-school suspension
Vice principal notifies parents via mail
Students goes to in-school suspension
Teacher announces in-school suspension names
Detention monitor checks student in and assigns work
Student responsible for all work
Students
City
Society
Outputs
Improved attendance
Responsible students
Better school image
Increased output for students
Increased production for staff
Reduced lateness

- teacher corrections to the attendance list and absences from September 1, 1991-April 30, 1992.

Step 2: Current Situation

Our target for improvement was: *an attendance rate in the high school in excess of 95 percent.* By correcting our tardiness data, we believed we could improve that rate immediately. Then we could determine why the remaining students didn't attend school and begin developing solutions.

Using *Pareto charts* we stratified our improvement theme. After reviewing data about recorded attendance, absences, and tardiness, and teachers' corrections to the attendance data, we confirmed that students who missed homeroom were being marked absent even if they attended classes all day. We created two Pareto charts, one to show attendance data and a second one for tardy/absence data. Figure 2 is our Pareto chart for attendance data; actual numbers are on the left, percentages are on the right, and histogram bars represent subsets of the overall issue. The teachers on the Quality Improvement Team broke into groups to learn this tool and then used these charts to explain these data to the entire team.

Step 3: Analysis

After we corrected these tardy data, the high school attendance rate was up to a monthly average of 92 percent. Our next step was to determine the root causes of nonattendance for the remaining 8 percent of students' absences.

Using an *Ishikawa (fishbone) diagram*, we conducted a cause-and-effect analysis (fig. 3). After brainstorming why students are absent or tardy, we grouped reasons into four categories: *outside influences, staff, student*, and *system.* Whenever a cause was given, the team asked *"Why?"* Asking this question repeatedly forced us to step back and keep searching until we were left only with root causes. In Figure 3, each arrow connected to the central (bone) line had "Why?" asked again and again until there were no more whys to ask.

> The Total Quality tools helped us focus on the problem *one step at a time.*

The answers to these why questions are indented under the first idea. The last answer (in bold face in the figure) generally indicates the cause, not the symptom. It took great patience to probe in such a way, so different from the modus operandi of school systems. In education the tendency to address symptoms, not causes, is the reason the same problems resurface in other forms later on.

Finally, we had four root causes that we believed negatively affected student attendance:

- students are not challenged enough by the curriculum and how it is implemented;
- parents lack appropriate education and motivation;
- teachers lack sufficient understanding of students and their needs;
- data system and policy/procedures aren't aligned.

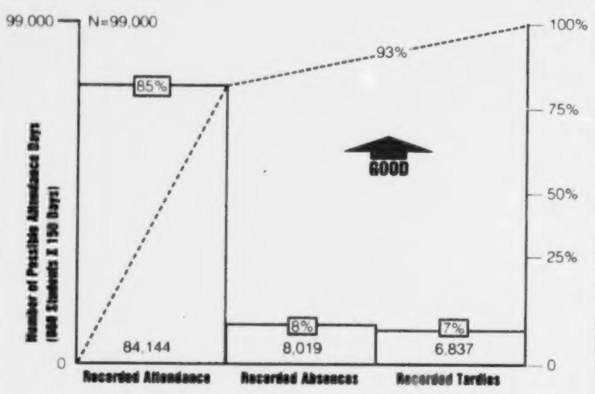
Step 4: Countermeasures/ Potential Solutions

Next we formulated *countermeasures/potential solutions* to those root causes that were within our control to change. Next to each countermeasure, we listed practical methods. Then using a matrix (fig. 4), we verified that the countermeasures and practical methods would address the root causes by rating each one in *effectiveness* (How much will it reduce the root

Figure 2

Pareto Chart of Attendance Data

September 1991 to April 1992



cause?) and *feasibility* (How much time, money, and so on are needed?). On a scale of 1 to 5, 5 represented the most effective, feasible measure. After analyzing these two criteria separately, we added the scores to the countermeasures matrix. To obtain an overall rating score, we multiplied the two scores for each countermeasure. We then ranked the countermeasures by their overall ratings.

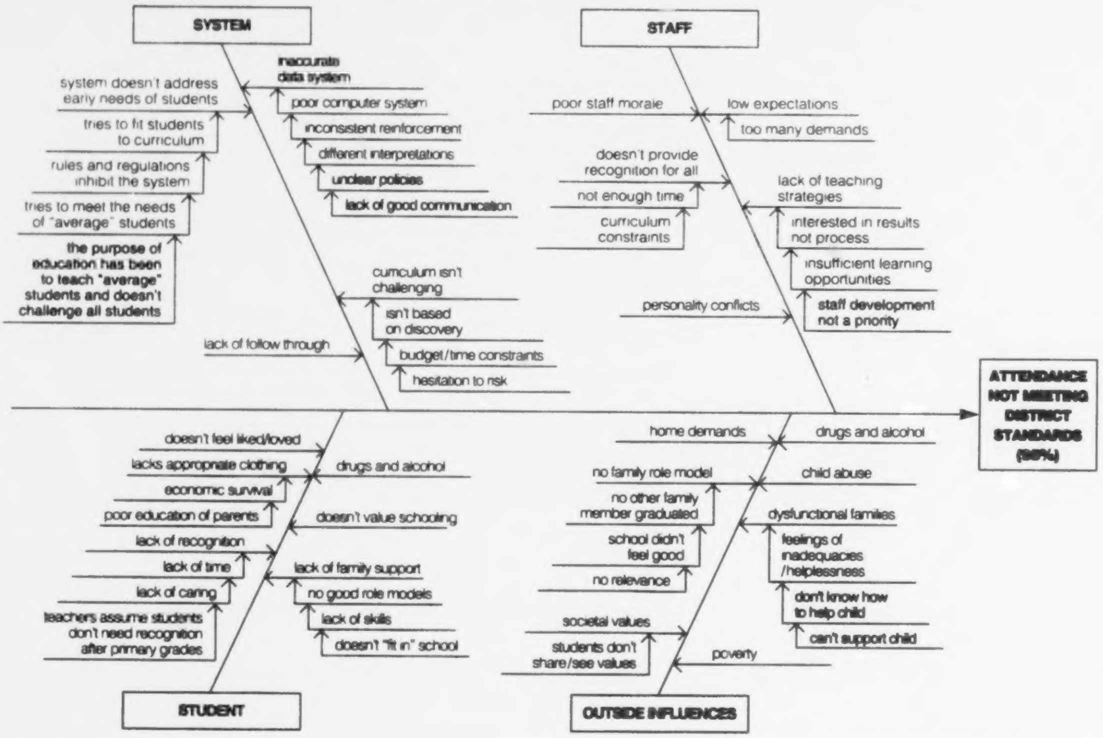
After reviewing our resources, we agreed on a number of practical methods to improve attendance and decrease tardiness. We decided to create a staff development program, form an ad hoc attendance committee, and plan a parent-to-parent program in the school. We also instituted a new computerized system for attendance data and have begun rewriting the math and reading curriculums to align them with standardized tests and SCANS. Some of these techniques—the new data system, ad hoc committee, and parent-to-parent program—may affect attendance immediately, since they'll be in place by September. The others will take longer as they must be phased in.

The action plan we developed—detailing timelines, responsibilities, costs, and so on—was approved by the Board of Education and took effect in September 1992.

We've now completed the first four steps of the Quality Improvement Story process, which we've learned represents 60-70 percent of the work on any improvement opportunity. Steps 5-7 will follow once we study the results of our efforts.

Figure 3

Ishikawa (Fishbone) Diagram of Root Causes of Nonattendance


SYSTEM
system doesn't address early needs of students
tries to fit students to curriculum
rules and regulations inhibit the system
tries to meet the needs of "average" students
the purpose of education has been to teach "average" students and doesn't challenge all students
inaccurate data system
poor computer system
inconsistent reinforcement
different interpretations
unclear policies
lack of good communication
curriculum isn't challenging
isn't based on discovery
budget/time constraints
hesitation to risk
lack of follow through
STAFF
poor staff morale
low expectations
too many demands
doesn't provide recognition for all
not enough time
curriculum constraints
lack of teaching strategies
interested in results not process
insufficient learning opportunities
staff development not a priority
personality conflicts
ATTENDANCE NOT MEETING DISTRICT STANDARDS
doesn't feel liked/loved
lacks appropriate clothing
economic survival
poor education of parents
drugs and alcohol
doesn't value schooling
lack of recognition
lack of time
lack of caring
teachers assume students don't need recognition after primary grades
lack of family support
no good role models
lack of skills
doesn't "fit in" school
STUDENT
home demands
drugs and alcohol
no family role model
no other family member graduated
school didn't feel good
no relevance
child abuse
dysfunctional families
feelings of inadequacies /helplessness
don't know how to help child
can't support child
societal values
students don't share/see values
poverty
OUTSIDE INFLUENCES

BEST COPY AVAILABLE

Step 5: Results

During the fifth step, the Quality Improvement Team will meet once a month to review the results of our action plan. We will compare the Pareto charts (Step 2) with current data to determine whether the practical measures we've instituted are eliminating the root causes of student tardiness and absence. If not, we will revise our plan.

If the methods are successful, we will further stratify the root causes (Step 3). Then we will address other fundamental causes. Additional countermeasures and practical methods may have to be implemented if the results are not satisfactory in eliminating the root causes and meeting the target for improvement.

Step 6: Standardization

Next we will make the methods proven successful (in Step 5) part of our standard operating procedure. Doing so will prevent recurrence of the root causes of the problem of absences and tardiness. At that time, we'll create new processes or modify old ones. Staff development will be crucial then to help employees understand the results of the Quality Improvement Story and how the new policies and procedures will prevent the root causes from recurring.

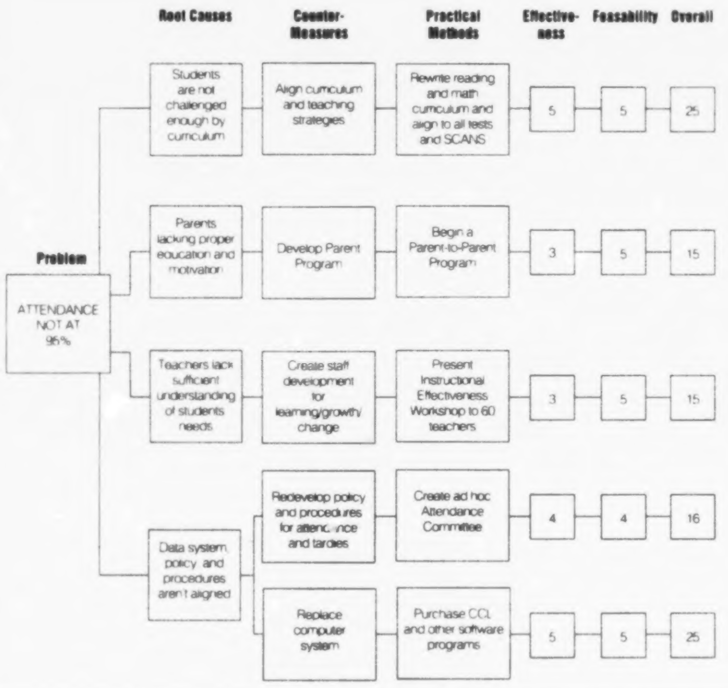
During this stage, periodic checks will play an important role in guarding against backsliding into old behaviors that may cause the problem to recur. This is also a gratifying time to share our successes with other schools and other professionals.

Step 7: Future Plans

The final stage in the problem-solving process is to evaluate the effectiveness of the Quality Improvement Team itself, reflect on lessons learned, and identify further opportunities for improvement.

Figure 4

Matrix of Countermeasures/Potential Solutions to Nonattendance


Root Causes
Counter-Measures
Practical Methods
Effectiveness
Feasability
Overall
Problem
ATTENDANCE NOT AT 96%
Students are not challenged enough by curriculum
Align curriculum and teaching strategies
Rewrite reading and math curriculum and align to all tests and SCANS
5
5
25
Parents lacking proper education and motivation
Develop Parent Program
Begin a Parent-to-Parent Program
3
5
15
Teachers lack sufficient understanding of students needs
Create staff development for learning/growth/change
Present Instructional Effectiveness Workshop to 60 teachers
3
5
15
Data system policy and procedures aren't aligned
Redevelop policy and procedures for attendance and tardies
Create ad hoc Attendance Committee
4
4
16
Replace computer system
Purchase CCL and other software programs
5
5
25

Our Stories Have Just Begun

The Quality Improvement Story process provided us a framework around which to improve attendance in our district high school. The Total Quality tools helped us focus on the problem *one step at a time*. We were able to combine subjective opportunities (the countermeasures matrix, defining the theme and the target for improvement) with data that provided opportunity for management by facts (the block diagram, Pareto charts, feasibility and effectiveness matrices). Throughout the process we were reminded not to *jump to solutions*—but, rather, to analyze a problem completely before deciding on concrete actions.

Undergirding this valuable process for learning and practicing new behaviors are the general principles of Total Quality Management:

- those closest to any improvement opportunity should be involved in its solution;
- learning and leadership are everyone's responsibility;
- decisions must be made with facts;
- understanding systems theory is central to quality;
- continuous improvement is the norm for all activities and not the exception.

Although our Quality Improvement Team members are novice practitioners of Total Quality, we are convinced that the process presents valuable opportunities to systematically bring about change in our school system. We are well on our way to improving our local school system, *one story at a time*. ■

[1] The other New Jersey districts are Asbury Park, Cherry Hill, Hamilton Township, Manville, and New Brunswick.

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Getting Started with TQM

Kenneth R. Freeston

Staff members in this Connecticut school district knew they couldn't rely on someone else's model to achieve quality. They found their own path to success through the works of Deming and Glasser.

For a long time, our district kicked off the school year as most other districts did. The faculty gathered in the high school auditorium for a speech by the superintendent, who outlined our focus for the coming year. It was here that the Newtown, Connecticut, Public Schools, launched into Hunter, shared decision making, multiple intelligences, cooperative learning—and the list goes on.

We thought we were leading. We thought we were bringing practice into line with research.

We were wrong.

Over time, we created a scattered, disjointed pattern of programs and projects. Taken individually, they were fine. But by their very nature, projects and programs begin and end. They are the antithesis of continuous improvement.

We felt a pervasive uneasiness that although we met traditional expectations for student achievement, we fell far short of the kinds of successes we knew we could achieve. Without the perspective of quality, we were not sure of what to improve, or even which questions to ask.

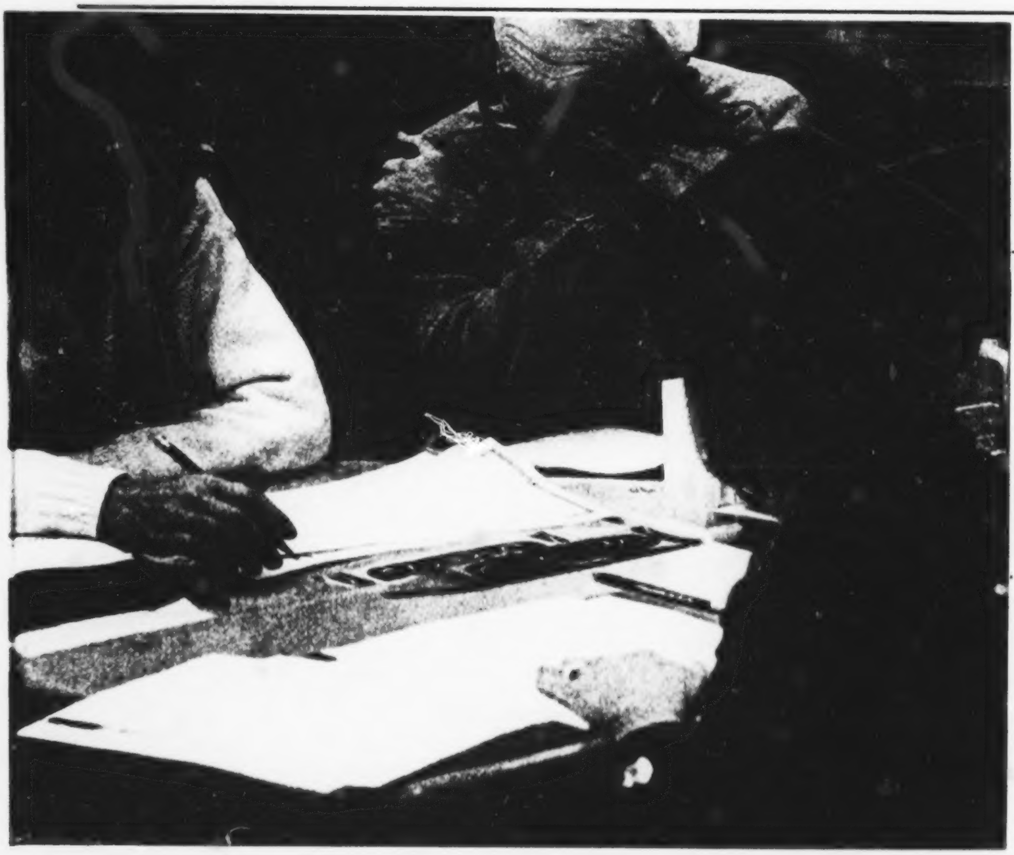
Two years ago, Newtown committed to changing the situation by becoming a total quality system. As we started our work, we became convinced that we could not simply adopt someone else's model of quality; we needed to develop our own. At a summer institute, administrators developed the Newtown Success-Oriented School Model (fig. 1), which became the cornerstone of our quality process. The model blends elements of Deming's 14 Points with Glasser's approach to quality.

Human Needs

We found that many models for achieving quality emphasize the work process and do not acknowledge psychological aspects of change. Glasser's Control Theory and Reality Therapy explain human behavior as needs-driven. People are internally motivated to meet their basic human needs for belonging, power, freedom, and fun (Glasser 1984). Because we believe that Glasser's ideas, which now extend into the area of quality schools (Glasser 1990), are critical (Freeston 1992), we designed our model to reflect the proposition that all wants come from unfulfilled needs.

Adapting Glasser's terminology somewhat, we acknowledge that people are internally motivated to meet their individual needs. Thus we train staff extensively in the role of human needs in our organization. The full training takes three years to complete, and shorter training options are regularly available to staff.

We also have discovered that considering the age of professional staff is important. With 84 percent of our certified staff over age 40, we felt compelled to address the different needs that staff members have at different ages. Working with Judy Arin-Krupp, we examined the application of adult development theory and research to our schools (Krupp 1981).



Without the perspective of quality, we were not sure of what to improve or which questions to ask.

Model for Quality

Adapting Deming's quality canons is not an easy task for a district, and we have struggled with a variety of barriers (see fig. 2). But our model embodies Deming's work in several ways.

The interaction of the four circles in the center of the Newtown model depicts how we now make decisions for improvement. Notice that no arrow connects a *want* directly to an *action.* When we were thinking conventionally in Newtown, we usually took action based on someone's statement of want: I want my child in Algebra, I want to offer an American Studies Program, or I want to offer French in grade 6. Because we spent much of our time responding to hundreds of requests like these, we had no notion of constancy of purpose or continuous improvement. We quickly learned from Deming's work (Walton 1986) the importance of consulting knowledge and core beliefs before taking action.

Knowledge. In our first year using the model, we viewed the "What We Know" circle as research-based. We joined a number of data-search organizations and quickly grew dissatisfied with the paucity of good syntheses on various topics. We now understand that collecting information, another Deming tenet, goes far beyond reading research reviews. Knowledge of student test scores is only part of what we need. Conventional assessment techniques offer data, not information, so we are developing alternate forms of assessment through the New Standards Project. Additionally, teams of teachers are establishing performance standards for Newtown students at designated grade levels.

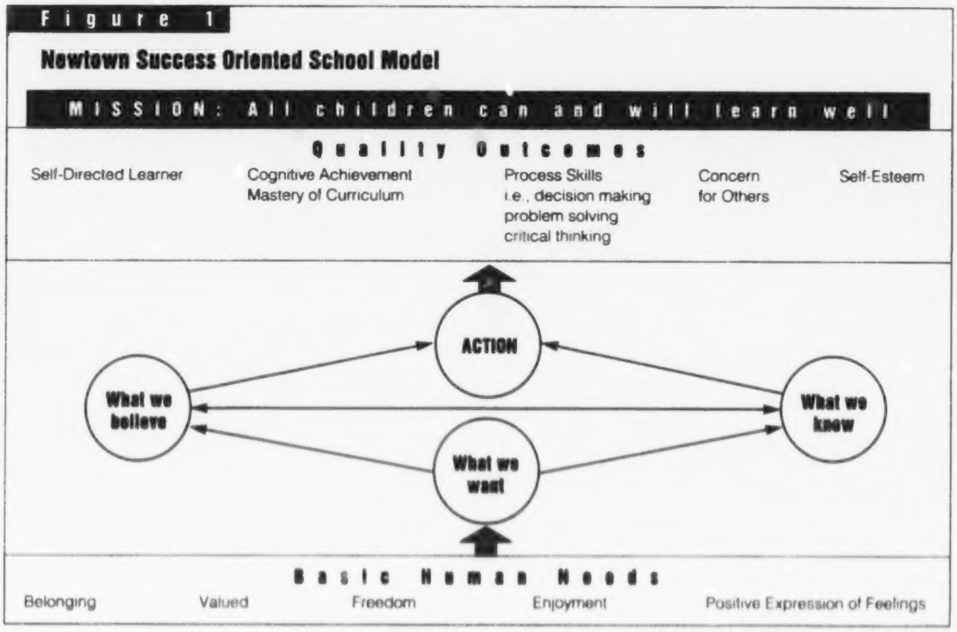
Beliefs. The "What We Believe" circle is crucial to quality management. Working together for more than a year, our Quality Council developed a set of core beliefs. Defining the core beliefs of an organization is one thing; bringing group and individual behaviors into alignment with those beliefs is quite another. We feel our beliefs are part of a continuum, not absolutes. We must evaluate where practices and programs are located on the continuum and move them in the direction of the belief. For example, we may look at programs like Great Books at the elementary level, or Advanced Placement at the high school, to determine whether the way we choose students to participate aligns with our belief in inclusion. We will look at the way we make curriculum decisions for alignment with interdependence, and we will look at our grading practices for a match with our belief in success. Only after we consult our core beliefs and knowledge can we take action for school improvement.

The Quality Outcomes

In Newtown, we believe our mission is to provide an environment where "all children can and will learn well,"

Figure 1

Newtown Success Oriented School Model



seven words that capture the essence of our constancy of purpose.

Many of our staff did not actually support the "all" notion, believing instead that changed social conditions and dysfunctional family settings present insurmountable barriers for some learners (Hay and Roberts 1989). But changes in students' home lives are important variables. Because a learner has more, or different, needs does not mean that student can't learn.

The word *can* expresses our commitment to multiple intelligences. We brought the work of Howard Gardner directly into the mission of the Newtown schools by acknowledging that every student has unlimited and multiple abilities. We reject the phrase "up to potential."

The word *will* acknowledges Glasser's assertion that all of us are internally motivated (Glasser 1990). And the word *well* is the core issue of quality. Minimal effort is not enough in the Newtown Schools. We want each student to:

- become a self-directed learner;
- achieve cognitively and master the curriculum;
- acquire process skills (decision-making, problem-solving, and critical thinking);
- show concern for others; and
- know the importance of self-esteem.

For the past year, teams of teachers have been defining the critical attributes of each outcome. District curriculums will then be modified to reflect specified efforts toward each outcome in each discipline.

What's Different Now?

After two years, what are we doing differently? The most obvious difference is that we are thinking differently and are guided in those thoughts by the logic of our model.

We have also changed our orientation for new teachers. Projecting our staff retirements to be substantial in the coming three to five years, we needed to design a way to welcome new professionals that balances their unique capabilities with our model and quality concepts. New teachers now spend a week with us in the summer, and the training will probably grow to two weeks. Gone are school tours with directions on how to find the copier, telephone, and coffee. In their place are the teachings of Deming, Glasser, and others.

Our general training is also different. The superintendent teaches a 12-hour course to staff, parents, and community members, focusing on Deming's 14 Points and their application in the Newtown Schools. A binder containing resources on quality is given to each course graduate and is updated monthly with new articles. There is also a course on applying Glasser's work on the role human needs play in our model.

Quality core groups in each school are beginning to shape their own allotment of inservice time and resources to address quality issues. When a redesign of the mathematics curriculum created some internal disruption and debate, we used some of what we had learned about continuous improvement. We brought together groups of teachers for problem-solving exercises and to design an improvement plan for issues they felt were important.

People often think that a quality orientation costs more money, but that's not what we've found. While our town is an affluent community, we spend less than the state average per student. Our wealth is in the top third of Connecticut towns, but our per-pupil expenditure ranks in the bottom third. Several local issues account for this: frequent referendums on school budgets pit interest groups against each other; longtime residents who prefer the rural character of a New

Figure 2

Attitudinal Barriers to Quality

The Word *Quality* Itself	Seen by many as a platitude, unobtainable, and overused by advertisers
The Corporate World as the Model	Skepticism about corporate example, rejection of customer orientation
Leadership	Low confidence in leader commitment, scant examples of quality-oriented leaders
Just Another Change	Regarded as another trend that will pass
One Year at a Time	Quality is a long-range commitment and schools plan on a one-year basis
I Know That Already	False perception that there's nothing new in a quality orientation
Students Don't Value School	If only the student worked harder, we wouldn't need to improve schools
It's Not My Fault	Changed social context of families presents insurmountable barriers to successful schools
A Question of Culture	Belief that quality management is only achievable in Japan's culture
Teacher as Self-Employed Entrepreneur	Teaching is an independent, isolated profession without the collaboration needed for a quality approach

England town resist requests for appropriate education funding from newer, pro-education residents; and other interests compete for local taxpayer revenues. It's been difficult keeping citizens focused on education funding when large expenses such as mandatory sewer construction require public funds.

Continuous Improvement

With an emphasis on continuous improvement, there is no rest. This is an important paradigm shift for professionals accustomed to annual projects and programs as the definition of change. In our third year of quality management in Newtown, we face several major areas of emphasis.

We need to stay close to the customer, never thinking we know all there is to know about the needs of students and parents. While acceptance for the idea of being customer oriented has grown, we really don't know how to do it well.

Convincing staff that our quality orientation is not a quick fix also needs work. Our staff members have centuries of combined experience with school leaders jumping on the bandwagon of the latest change. Deming's claim that nearly 90 percent of all organizational problems are management problems forces us, as school leaders, to acknowledge we have a past to overcome.

Through training and application, we want to expand our understanding and use of tools such as histograms, run charts, and Pareto charts. They should be as common as plan books and are far more useful. By training students and all employees in their use, we can convert data into information that will help us place both student and program evaluation in the proper perspective.

We have recognized the need to apply quality management techniques to problem solving at all levels of the school system. In the short run, this means training a team of facilitators to be available throughout the district. In the long run, it means that continuous improvement must guide our thoughts and actions.

Long-Term Approach

Any school district considering quality management needs to struggle with its own issues and develop its own model; adopting another person's model will be regarded as just another external pressure for change. *Quality* has already become a marked term in some educational circles. Journals, workshops, and consultants have popularized, and thus diminished, its significance. In a very short time, some educators have taken a long-term, continuous improvement model, converted it to a quick fix, and killed it.

The Newtown schools are committed to a long-term approach to school improvement. We are confident in our model, in part, because it is our own synthesis of knowledge and experience. When we acknowledge that the student is the customer, learning is the product, and teaching is the service, we put ourselves in the position of achieving legitimate school improvement. ■

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TQM IN TUPELO

By Marilee C. Rist

Stumbling on participatory management almost by accident, Superintendent Mike Walters of Tupelo, Miss., finds the power pie gets bigger every time you cut it

“I WAS A HAPPY BUREAUCRAT,” SAYS MIKE WALTERS, superintendent of the Tupelo (Miss.) schools, describing his former approach to school administration. He recalls his years as assistant superintendent for instruction: “I was Mr. Curriculum. I decided what was written. I decided how it was written. I had a highly structured program from the top down.” It was the approach superintendents across the country traditionally learned—by observation as well as by formal instruction. And Walters honed it carefully over nearly two decades as he climbed the chairs from teacher to superintendent of the Petal school district, near Mississippi's Gulf coast.

“I think I [managed curriculum] as well as anybody I've ever seen,” Walters continues. Then one day he had a disturbing insight: “It came to me that we were as good as we were ever going to be,” he says. “I realized the district was never going to be any better than I was, because I had done it all—and that scared me.”

That's when Mike Walters decided he had to find a different approach. Not knowing what else to do, he says, he started giving a bit of authority to others. His surprising (and rather humbling) discovery: “I found out that most people in the school district were a lot smarter than I was,” he says with a quiet laugh. “When I gave them authority and trusted them, it suddenly made me look real smart.”

This lesson in participatory management, which Walters says he stumbled upon quite by accident, could have come straight from a textbook by W. Edwards Deming, the guru of total quality management. Indeed, Walters has since learned about—and wholeheartedly adopted—Deming's concept of continuous improvement, which builds on the meaningful contributions of everyone in the organization. But the initial discovery of sharing authority was an eye-opener for this unabashedly top-down manager. “I figured out the power pie gets bigger every time you cut it,” says Walters. “I was so much more effective by giving power away than I was before, it was amazing.”

Today, he's chief of a 7,500-student, small-town district in northern Mississippi, where teachers—that's right, *teachers*—are “reinventing” the schools. In Tupelo, teachers have an open invitation to the superintendent's office. They come with their ideas for improving curriculum or restructuring how they teach. They come with proposals for instituting nongraded primary school or multiage groupings or cooperative learning or integrated foreign-language teaching. They come with requests for money to visit far-flung school districts where experiments in schooling are in progress or to attend seminars devoted to compelling topics in instruction and teaching.

And thanks to a local businessman's recent $3.5 million contribution to the Tupelo schools—the largest private gift to a school district in the history of U.S. public education—Mike Walters can say Yes to most of these requests for professional development experiences. Teachers in Tupelo can travel almost anywhere, take courses, bring in consultants, run seminars, and do what they deem necessary to help the Tupelo schools achieve the school board's lofty goal: to become one of the top 10 school districts in the nation.

Walters endorses that vision, and he knows exactly how he intends to achieve it: by investing in teachers. “We will never be any better than the people who are teaching kids in these classrooms,” he says emphatically. “If you want to be the best, you have to invest in teachers—support their development, invest in practice, and underwrite the entrepreneurs out there.”

Walters, 45, is a tall, good-natured man with an easygoing manner, a freewheeling openness to school reform, and a mind eager to explore promising new ways of educating kids. So much does this superintendent relish talking to teachers and hearing their ideas that, shortly after stepping into Tupelo's top job two years ago, he replaced the solid, imposing

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wood door into the superintendent's inner sanctum with a clear glass door.

"That created an openness, and it's been appreciated," says Janet Violette, president of the Tupelo Association of Educators.

Walters' teacher-centered approach to reform has instilled an unmistakable sense of pride in Tupelo's teachers. "When I visit other schools, [people] are always curious about who *let* me do this," says Sherry Pittman, a teacher at Church Street Elementary School, where four teachers launched one of the district's first efforts at multiage grouping in the primary grades. Pittman says teachers in the districts she visits warn that she won't be able to replicate their success stories—that it would cost too much or take too long.

Her answer is one that few teachers anywhere in the country could give with confidence: "I say, 'Yes, I *will* be able to. All I have to do is say I've determined this is necessary to be successful, and somebody will find a way for me to have it.'"

Pittman and her colleagues at Church Street School—all prime examples of Tupelo's approach to reinventing schools—talk enthusiastically about the changes they're exploring and implementing in their classrooms. "Everybody is having a great time with this. You almost feel guilty because you're having so much fun," says one. "You're almost consumed by it," offers another, as others chime in about working at night, on weekends, on vacation.

Teachers even use personal time during the entire month of August—without extra compensation—to participate in staff development programs, says Teri McClay, an organizer for the Mississippi Association of Educators.

And that's exactly the spirit Walters aims to instill. "We don't *require* anybody to do anything," says Walters. "Teachers are creating their version of the vision—and that's very important. I can't sell my vision to everybody in the school district, nor should I. Everybody has different talents and interests, and everybody deserves [his or her] version of the vision."

Tupelo enjoys a long-standing reputation as a leading light among Mississippi's school districts. For the past 15 years, the district has led the state on such measures as college entrance examination scores—and it was proud to send Walters' predecessor, Richard Thompson, on to become state superintendent of instruction. Board president Claude Hartley notes that the town has a great sense of civic pride. When the school board announced its intention several years ago to make the district one of the 10 best in the nation, Hartley says, everyone in town stood solidly behind the decision.

But even with the district's record of success and its willingness to aim ever higher, the changes going on in Tupelo today signify a quantum leap from schooling of the past. Hartley is quick to give credit where he says it's due: The community wants outstanding schools, and the board established the vision, he says, but the individual responsible for taking district in its current direction is the superintendent.

And if Tupelo has changed, it's largely because Mike Walters changed first. He's a far cry from that "happy bureaucrat" he says he was just a few years ago. How did this personal change come about? What led a dyed-in-the-wool, top-down bureaucrat to pluck his brain off the shelf and open his thinking to a whole new way of leading schools?

As Walters himself explains it, he had to find a different way—because the old way simply wasn't working. "I knew the system did not support teachers and students and did not respond to their needs," he says. And, Walters adds, he didn't know another way to make it more responsive. "I knew I could draw organizational charts, and I could go out and kick butts, but I knew our organization could not respond to our customers."

He started talking to business leaders in Tupelo—a town that, with just 30,000 residents, boasts an astonishing 19 Fortune 500 companies. The challenge facing business in Tupelo, these business people said, was the imperative to remain competitive in an increasingly competitive global environment. And the tool they were using to achieve that goal was total quality management, better known as TQM. Tupelo's business leaders, says Walters, "told us what they need to be successful, and I asked them to help me achieve that in the school district."

From those initial talks, the school board has created an industry/education council that links local business with the schools in some creative ways. For instance, one company, Monarch Mirror, includes Tupelo teachers in training sessions on TQM. And an annual industry/education day brings business leaders to speak to Tupelo teachers on issues ranging from implementing the total-quality approach to preparing students for the demanding work environment of the 21st century. (It was just such a speech—in which one local businessman said industry could never survive if it operated on nine-month cycles as schools do, starting all over again every fall—that led the Church Street School teachers to consider multiage groupings of students.)

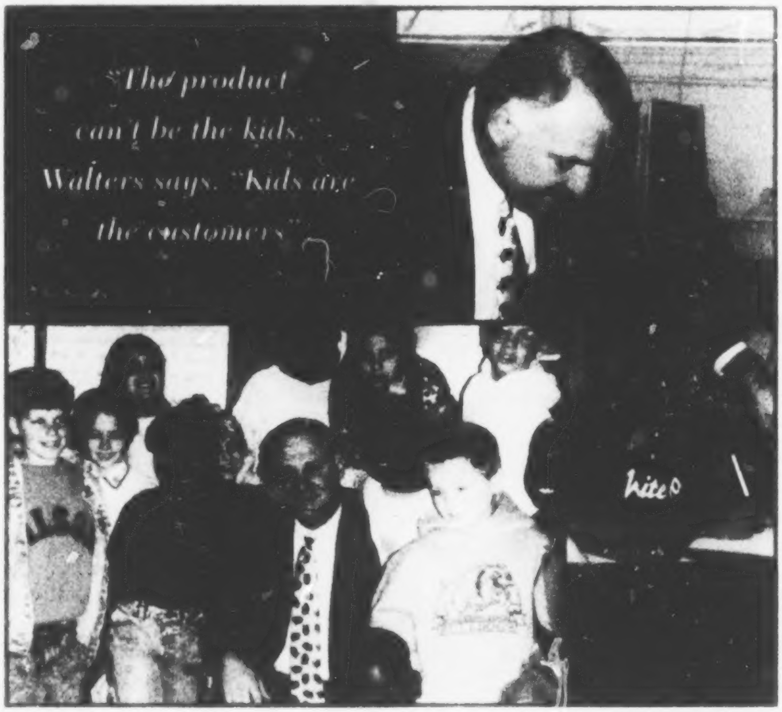
As Walters describes it, the fundamental assumptions of the quality approach—including the concepts of continuous improvement and of involving employees in the process of improving service throughout the system—have led him to question many traditional assumptions about schooling. And through that questioning, Walters (and others in Tupelo) are coming up with some innovative solutions to old problems.

Example: Walters says he's long been troubled by the kids the system fails—the students who drop out mentally long before they actually drop out of school. The traditional solution has been to "remediate them," he says, adding that he finds the very notion of remediation disturbing. Walters calls on a metaphor from manufacturing to explain: "When industry looks at costs, one of the major costs is rework—which means something got out of the system that didn't meet specifications," he says. The answer is "to come back, drill it, fix it—or scrap it. Rework is a major cost."

Walters says he started thinking about how much the school district spends on "rework"—through retention, remediation, special education, and alternative schooling. Out of a $27 million budget, he says, Tupelo spends $4 million a year reworking: "A systems person would say that if we spent $2 million working on the process to prevent the rework, we would save $2 million."

With that line of thinking motivating him, Walters is pushing for greater emphasis on early childhood and primary education—and on working with parents to be effective teachers for their children. "We've adopted the motto from American business that says, 'Do it right the first time,'" he says.

He's also come up with the idea of opening a new middle school "for kids who've fallen two grades behind and are waiting to drop out." The difference between this school and the traditional approach: Students will enter an accelerated program instead of a remediation program. "All the rules are off," Walters says. "We've already lost on these kids, so we have nothing to lose." The aim of the Fast Track Program, as Walters calls it, will be to bring students rapidly back up to grade level "by inventing high-quality work that these kids will engage in."


"The product can't be the kids," Walters says. "Kids are the customers."

Sherry Pittman

High-quality work: That's a phrase you hear often from Walters—and just about anyone else you meet in the Tupelo schools. They also call it "knowledge work."

It's a concept Walters has adapted from Phillip Schlechty of the Center for Leadership in School Reform, based in Louisville, Ky. As Walters explains it, knowledge work consists of meaningful work for students—work that grows out of real-world experiences; work that helps students understand how to apply what they learn. In fact, as Walters sees it, the product of schools is the work presented to kids—not, as many educators believe, the kids themselves.

"The product can't be the kids," he says. "Kids are the customers." The job of teachers is to take the raw material—that is, the curriculum—and create work that kids will buy. Put another way, says Walters, "If you want to look at the product, look at what educators actually *do*." Teachers plan work and learning experiences for students, he says. "If you start working on the work—and improving the work every day—you start inventing work these customers will buy." Over time, Walters says, this approach can transform the classroom.

Not surprisingly, not everyone has embraced Walters' faith in continuous improvement—or even the district's new approach to teacher-initiated change. Janet Violette acknowledges some teachers are reluctant to take on the unaccustomed levels of responsibility. "The district used to teach by objective, and if the students didn't get it, we'd reteach it," she says. "We came out of that tight structure to where the doors are thrown wide open. And that's scary." As Walters sees it, this fear of taking risks is natural, and the solution lies in driving fear out of the organization—another TQM imperative. "If we imply in any way that teachers who are trying to get out there on the edge are going to be harmed in way if they fail, they aren't going to do it," he says.

The community, too, has concerns about what all this change means, says board president Hartley. "You can't get out too far in front of your community," he cautions. "The community has to understand the change." He describes the process as moving ahead, then hesitating long enough to answer people's questions. "If you don't bring the community along," says Hartley, "you ensure that reform will fail."

Violette puts it another way: "Right now, our biggest obstacle is communication," she says. She cites the need for communication among teachers—so they're informed about what's going on across the district in different schools and classrooms—and with parents, so they understand the changes taking place in their children's classrooms.

Walters acknowledges this is high-risk stuff—"scary work," he calls it. "But the thing that keeps me going is knowing that it's doable—if you can get tradition and convention and the old bureaucratic thinking out of the way." Those—not lack of ability—are the barriers to long-lasting change, he says. "What we're doing is changing the way we think," he says, and that's a profound—and inevitably destabilizing—effort. To Walters, school restructuring is not a list of programs or a step-by-step manual: "It's a way of thinking. But it's doable. The question is, do we have the will to do it?"

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Quality Management for Schools

Dorothy Mulligan

By 1983, one-third of the American companies in the 1970 "Fortune 500" were no longer listed, and many of those remaining had lost considerable market shares to foreign competitors. Xerox, for instance, lost half its market share between 1976 and 1982, and Ford lost $1.6 billion in 1980 alone.

Xerox and Ford, however, are among the U.S. firms that have made remarkable comebacks. By cutting its manufacturing costs in half and radically decreasing the number of defective parts over the last decade, Xerox is again competitive in the global market. And this year, Ford may overtake Honda in auto sales in the U.S.

Xerox and Ford achieved these turnarounds by committing themselves to a new style of management. They were among the first major corporations to join what is being called the quality revolution.

Beginnings in Japan

The father of the quality revolution is generally acknowledged to be W. Edwards Deming, an American whose management principles helped Japan become a world economic power. A statistician who had worked for the U.S. Census Bureau, Deming first went to Japan in 1947 to help that nation prepare for its first postwar census. Impressed by his quality control methods, Japanese business leaders invited him to return in 1950, at a time when "Made in Japan" was synonymous for junk, and "Made in U.S.A." symbolized quality.

Deming lectured to the Japanese that the consumer was the most important part of the production line, and that they must produce quality goods for a world market by working with their suppliers to gain control over the entire manufacturing process. The Japanese listened and learned, then applied the lessons.

Meanwhile, in the postwar years American companies were producing and selling a wide range of consumer goods, from cars and carpets to lawnmowers and furniture, to eager buyers around the world. Our industrial system employed mostly unskilled, poorly educated workers on assembly lines where jobs were broken into simple, repetitive steps. Although defects were often found, profits were large enough to cover repairs or replacements. Quality was not a major issue; production was.

How times have changed. The U.S., which once had more than 20 manufacturers of television sets, now has only one. Many American companies find it difficult to compete not only in the world market but in the domestic market.

What happened? Why did American consumers begin to perceive Japanese cars as having better quality than those made in Detroit?

Perhaps a clue lies in a statement made a few years ago by Chrysler's leader Lee Iacocca: "The purpose of this company is to make money." In contrast, Japan's Nissan has consis-

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tently defined its goal as building "the highest quality trucks sold in North America."

In 1980, many Americans were introduced to the concept of quality management by a 90-minute NBC News program called, "If Japan Can, Why Can't We?" The program examined the ways that Japanese industry had adopted Deming's management methods to produce a variety of quality products that consistently outsold those made in the U.S.

American executives began visiting Japanese plants to learn more about their operation. They came away impressed by the widespread use of quality practices. As a result, a number of American industries and government agencies have instituted quality management programs based on Deming's 14-point system (*see box*).

Quality Management in Schools

> *As in industry, the productivity of any school depends mostly on the skill of those who directly manage the workers—the teachers. But according to Deming, their success depends almost completely on how well they, in turn, are managed by the administrators above them.* (Glasser, *The Quality School*)

Are Deming's quality management techniques applicable to education? Virginia's Department of Education thinks so. In 1989, it received a federal grant to test the idea. With the help of the Xerox Corporation, the department has provided quality management training and support for school personnel in several school districts.

One Virginia school that is piloting a quality management program is Christa McAuliffe Elementary School in Prince William County. Principal Robin Sweeney and every McAuliffe staff member have undergone the same four-day quality training that all new Xerox employees receive. The program has three basic threads:

- *Interactive skills*. How to initiate, react to, and clarify ideas.
- *Problem-solving skills*. How to

Applying Deming's 14 Points to Schools

Here is how the public schools of Petersburg, Virginia, translate W. Edwards Deming's 14 principles for total quality management:

1. *Create a constancy of purpose*. All resources are aimed at student development. All programs that consume critical resources are examined systematically and those that do not contribute to student achievement are eliminated.
2. *Adopt a new philosophy*. We refuse to accept the idea that students cannot learn at high levels under the right conditions of teaching and learning.
3. *Cease dependence on inspection to achieve quality*. We no longer wait until the end of the year to measure student progress. Assessment occurs on a daily basis. We understand and agree upon the various meanings of "outcomes."
4. *Stop awarding business solely on the basis of price*. In the long run, high quality produces lower cost. We now choose, use, and evaluate facilities, textbooks, technologies, and other resources based on statistical evidence of success of the particular product.
5. *Constantly improve every system*. There is potential for improvement in each step taken to create or upgrade school programs and services. We continually identify barriers and seek workable solutions to improve processes.
6. *Institute training on the job*. A wide range of internal and external resources are used for the managerial, professional, and technical development of all personnel.
7. *Institute leadership*. We believe the job of management is not to tell people what to do, but rather to lead people in the right direction. We emphasize the quality of the total program rather than individual behaviors.
8. *Drive out fear*. We believe that one of the best ways to help an individual acquire a good self-image is not to do anything to damage it. We are committed to rebuilding and nurturing an environment in which trust and respect can be applied to what is said, heard, read, and written.
9. *Break down barriers between departments*. We break down barriers by problem solving through teamwork, and combining the efforts of people from different school areas.
10. *Eliminate slogans*. We believe that school employees should always strive to improve; however, solving all problems at one time can never take place. Our only slogan is that "Our Children Are Our Future."
11. *Eliminate numerical goals and quotas*. We place less emphasis on numerical goals and more on individual student progress, demonstrating our commitment to a long-term process.
12. *Remove barriers that rob people of pride in workmanship*. We encourage nonthreatening, two-way communications on quality outcomes between all levels of the organization.
13. *Promote employee education and self-improvement*. School districts must provide all employees with training in quality leadership, measurement, analysis, problem solving, self-evaluation, and assertiveness training.
14. *Structure management to accomplish the transformation*. Educational leaders must move from traditional management practices toward quality management processes geared toward problem prevention. We believe that such a transformation must come by evolution, not by revolution, and that everyone in the school system--including principals, teachers, support staff, students, parents, and community partners--is responsible for helping to bring it about.

From "Toward a System of Total Quality Management: Applying the Deming Approach to the Education Setting," by Willis B. McLeod, Brenda A. Spencer, and Leon T. Hairston. *ERS Spectrum* 10 (Spring 1992).

identify and analyze problems, collect and display appropriate data, and select, implement, and evaluate solutions.

- *The quality improvement process.* How to identify the "customer" and the product or service that represents "output"; how to plan, organize, and monitor for quality.

Has this training made a difference at McAuliffe?

"Yes, definitely," says Principal Sweeney. "Traditionally, when a new program is introduced, only the principal gets the training. Quality training is different. At our school, everyone has been trained, everyone feels ownership.

The quality training program emphasizes Deming's insistence that a commitment to continuous improvement must start with leadership and extend throughout the organization.

At McAuliffe, all meetings follow quality guidelines. They start and end on time. The participants are punctual, participate actively, and listen to one another with no interruptions or side conversations. They respect the agenda, share responsibility, and reach consensus decisions.

Quality management is also practiced by the students. They strive to do things correctly right from the start. They know and use interactive skills, especially brainstorming. They love to assign roles for "meetings." In a cooperative learning session, for example, a first grader will say, "I'll be the one who keeps us doing what we're supposed to do," while another volunteers to be the timekeeper.

Using Teamwork

Teamwork is what makes quality management work at McAuliffe. The staff members most affected by decisions are those who help make them. Teachers volunteer for many jobs, ranging from production of the school's annual spring musical to developing the master schedule. (Principal Sweeney says she did not receive a single complaint last year after the teachers' committee planned the schedule.)

Staff members also team up, on their own time, to write grant applications for innovative programs. As a result, McAuliffe has received $1,100 for a mentor program for new teachers; a $10,000 Chapter 2 grant for the school's McKids program, in which teachers and high school students tutor at-risk children; and a $100,000 grant from the Virginia Department of Education to further develop its ungraded developmental program.

Parents are also involved in quality management. Parent-teacher conferences have become three-way conversations, with the child included in portfolio reviews and goal-setting. Under the district's site-based management program, staff and parents meet to decide how the school's budget of $1.6 million will be spent.

Using Data

In keeping with Deming's prescriptions for quality management, McAuliffe uses data extensively in making decisions. The school's Parent Advisory Council conducts a needs assessment each year and sends that data to McAuliffe's Faculty Advisory Council, which also solicits input from all school employees before identifying specific needs and setting goals to meet them.

A problem that arose when McAuliffe's fifth graders moved on to a middle school where the staff had not had quality training, was resolved when Principal Sweeney informed the middle school staff that "we were their suppliers and we wanted to know how to serve them better."

As a result, IBM, one of the elementary school's business partners, invited staff members from both schools to its training center, where they were asked questions about how students could be better prepared for middle school. The resulting data indicated that fifth graders needed better organizational skills, and that learning disability teachers at both schools

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needed to talk face-to-face about individual students.

It Really Works

Does quality management work in an elementary school?

"Yes," Sweeney says emphatically. "Our climate has become charged with enthusiastic people. I have to chase the teachers out of the building."

McAuliffe's teachers are excited about the change. They say that quality management has enabled them to use their time more wisely and efficiently. It has also given them the skills to do their job better by minimizing "defects" and "rework."

Rarely does one see a McAuliffe teacher in the traditional role of instruction deliverer. Instead, one sees children learning and discovering, with the teacher serving as a facilitator, motivating and leading students while providing information, feedback, and reinforcement.

Although a sizeable number of McAuliffe's 640-plus students come to school without preschool experience or consistent parent support, their morale is high. Attendance was 95.9 percent last year, and 99 percent were promoted to the next grade level.

Achievement levels are high, too. More than 89 percent of McAuliffe's students work at or above grade level in reading, and 93 percent of the second graders and 88 percent of the fourth graders scored at or above the 50th percentile on the Iowa Tests of Basic Skills in 1990-91.

PROFESSIONAL ADVISORY

This article is in support of these standards from *Proficiencies for Principals* (NAESP 1991):

Leadership Proficiencies. The principal explores, assesses, develops, and implements educational concepts that enhance teaching and learning.

Supervisory Proficiencies. The principal sets high expectations for students, staff, parents, and self.

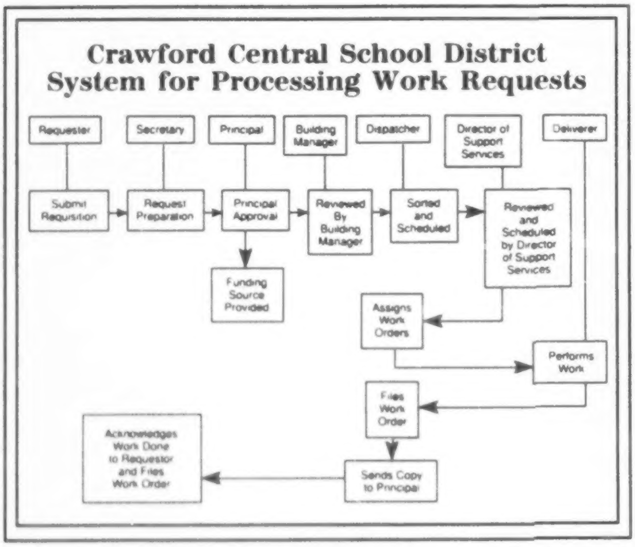
Management Proficiencies. The principal provides a safe, orderly climate for learning.

Streamlined Seminar (ISSN 0735-0023) is published six times during the school year by the National Association of Elementary School Principals. Singl copies: $2.50; bulk orders (10 or more): $2.00 ea. Virginia residents add 4.5% sales tax. Specify date and title of issue when ordering. Checks payable t NAESP must accompany order. Send to Educational Products, NAESP, 1615 Duke Street, Alexandria, Virginia 22314-3483

If You Can Count It, You Can Improve It

Total Quality Transformation Tools Sculpt Better Handle on System

BY ROBERT H. BENDER
Superintendent, Crawford Central School District, Meadville, Pennsylvania


Crawford Central School District
System for Processing Work Requests
Requester
Secretary
Principal
Building Manager
Dispatcher
Director of Support Services
Deliverer
Submit Requisition
Request Preparation
Principal Approval
Reviewed By Building Manager
Sorted and Scheduled
Reviewed and Scheduled by Director of Support Services
Funding Source Provided
Assigns Work Orders
Performs Work
Files Work Order
Acknowledges Work Done to Requestor and Files Work Order
Sends Copy to Principal

One tool to help us understand our work better is the flow chart shown above. Due to incessant complaints, we selected our work request system to examine closer.

My first direct exposure to total quality management and the work of W. Edwards Deming was not a result of attending a conference, reading a journal, or talking to a colleague.

My discovery of TQM happened when I was elected to the board of directors of the Meadville Area Chamber of Commerce. Meadville, the county seat of Crawford County, Pa., is located a few miles south of Erie and directly north of Pittsburgh.

While attending chamber board meetings, I heard some business people proclaim the benefits and opportunities of incorporating total quality management into their firms' operations. The discussions were electrifying and quickly piqued my interest as superintendent of a 5,000-student school district.

Chamber board members had an opportunity to meet Myron Tribus, a national advocate for TQM and excellence in the delivery of goods and services. He encouraged the chamber to establish a local excellence council, suggesting the spinoffs from a council would challenge the local public and private sectors to adopt TQM.

Training Under Way

In 1989, the Crawford County Excellence Council was established and continues to be a driving force behind TQM and its training component, total quality transformation.

TQT represents a series of training sessions involving the Deming Cycle of Plan-Do-Study-Act. Specifically, plans are made to improve a quantifiable system, improvement actions are carried out, results are studied, and if successful, staff act to standardize the gains in efficiency and effectiveness.

The Excellence Council organized a number of teams from local businesses and public agencies to participate in the initial TQT training. A team from the Crawford Central School District joined groups from the local medical center, the library, and a pet food manufacturer. Sensing potential benefits, the Crawford Central school board approved the expenditure of funds for the training.

We chose the work order system in the school district as our project through which we would receive TQT training. Over the years, I received incessant complaints about repairs requested and work delayed. These complaints were regularly expressed at meetings of my Staff Advisory Council, an elected group of teachers representing the district's nine schools.

Moreover, the problems of uncompleted work orders were affecting morale. Consequently, we jumped at the chance to solve this vexing problem.

We met Carole and David Schwinn, total quality transformation specialists from Jackson Community College in Jackson, Mich., at the first training session. The Schwinns were invaluable to all the teams as we threaded our way through TQT, the Deming Cycle, and the rich variety of quantitative tools they taught us.

The teams met during seven full days

between November 1989 and March 1990. The training was intensive, rigorous, and, perhaps most importantly, liberating in new ways to think about and attack problems in the school district. Here are some aspects of TQT in detail.

Getting Started

The first step in the training was a project selection workshop. The trainers were zealous in ensuring our work order problems represented the basis for a viable project.

First, we verified that an actual system was involved. A system is defined as a series of distinct steps involving several people who are engaged in activity that can be quantified. Examples of quantification might be the number of units produced or hours or days in which to complete some task. The trainers put their stamp of approval on the work order system as the basis for our first project.

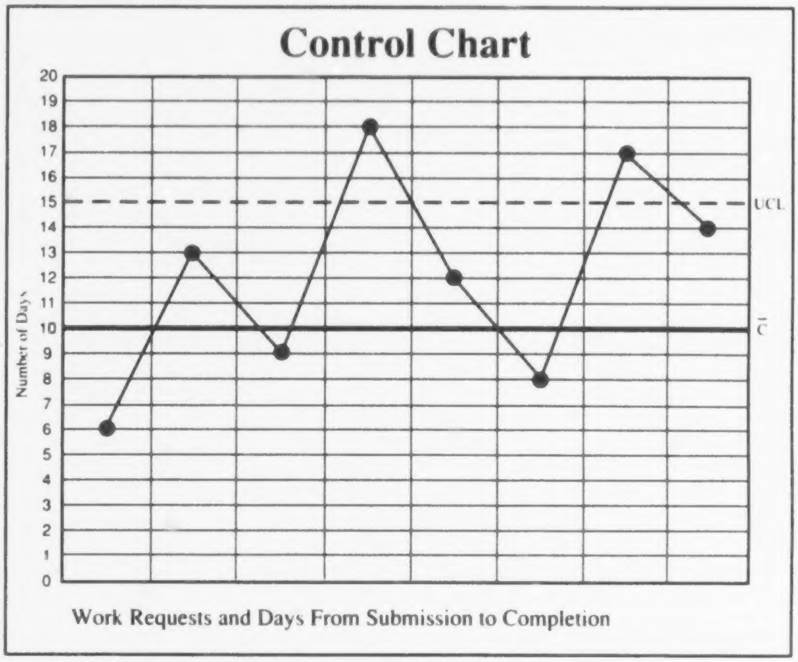
The next step was to select the project team members. Adhering to the axiom that composition of a team is project-driven, we selected key people who were involved in the initiating, receiving, routing, assigning, dispatching, completing, and verifying of work orders. The team included a school-based secretary, principal, dispatcher, maintenance supervisor, tradesperson, and myself as superintendent.

During previous discussions, Tribus strongly recommended that a CEO not delegate responsibility for introducing TQT into an organization. Consequently, I joined the team to emphasize my commitment to it.

The team drafted a project statement as a guide: "Improve the work order system by decreasing the response time from initiation of requests for repairs to completion of the work, without compromising safety or quality."

The next session was devoted to explanations of the Deming Cycle, project flow diagram, and quantitative tools. Our first assignment was to construct a flow chart of the work order system. Some seven drafts of the flow chart later, we finally felt secure the system was thoroughly and visually described.

Then, extended training time was devoted to selecting the most appropriate data-gathering methods. We had to identify very specifically what data would help us to pierce the system and uproot the problems in it.



The control chart (above) was used to track requests for work orders in the Crawford Central School District. Each work request was recorded on the horizontal axis at the bottom. The number of days it took to respond to the requests were listed vertically on the left side of the chart. The solid horizontal line represents an average of 10 days of response time to work requests. The broken line above it depicts the Upper Control Limit of 15 days—any response time above the UCL signals that the system is unstable. The chart reveals that two requests exceeded the five-day variance above the average and needed to be investigated to determine the cause.

Charting the Flow

A word about the training model—the Schwinns engaged one team at a time in intense discussion while the other four groups listened and, at times, raised questions or offered advice. In this way, each of the five teams learned about flow charts, data gathering, and ultimately all the TQT steps and tools five times in different project contexts.

We then drew data samples regarding the number of days required to respond to requests for repairs of school district property and equipment and to complete the work. These data were converted into an average response time for work requests. Then, using Statistical Process Control and a tool called a Control Chart, we learned how to compute reasonable and statistical variance from the average response time.

When we examined our control chart, we discovered some work requests required more days to complete than the reasonable and statistical response time. The chart graphically told us how significant the problem was and why it became a caldron of staff complaints. In Statistical Process Control parlance, our system was unstable and out of control.

We were trained to focus upon the work requests that exceeded the reasonable response time. In the world of total quality transformation, these problem areas are examined for extraordinary or "special" causes of which several were discovered. These included work requests for which necessary parts were on back order, unavailable sites where work was requested because of class activities, and requests which were actually long-term maintenance projects.

The trainers shepherded the teams through the next step which was to generate improvement theory. At this step, we discovered the main culprit of the system: the work request form. The form included no time references in sufficient detail and sequence to assign responsibility for the orderly processing of work requests.

Moreover, key positions in the work request system were not included on the form. To make an incomplete document worse, items such as trash removal were included on the form despite this service being contracted out years previously. To the point, we probably would not have analyzed, diagnosed, discussed, and solved the problems inherent in the system without TQT.

The primary remedy was a redesigned work request form. The new form includes a time-referenced tracking system whereby all staff can be held accountable for speedy processing of work requests.

Second, I issued a directive that no work would be done unless and until a work order form was submitted. As a contingency, we had a separate system to respond to emergency work requests.

Reinforcing Skills

The five teams participating in TQT training conducted public presentations of the projects' results. Planning for this presentation served to reinforce knowledge and skills related to the Deming Cycle, the steps in project development, and the use of SPC. Subsequently, I presented a description of the project and its results to the school board.

> *Staff should draw data samples periodically to prevent backsliding into old habits.*

TQT projects have a timeless feature to them so project team members should ensure that periodic data samples are drawn and analyzed in perpetuity. This tactic is necessary to prevent backsliding into old habits by people in the system.

Since our project experience with TQT, four additional rounds of training were conducted by the Excellence Council for Meadville area firms and agencies. The school district also pursued its commitment to TQT with follow-up projects.

I am trying to expand the base of staff people in Crawford Central School District who are trained in TQT. To do so, three additional projects and teams were identified. The projects are focused upon systems which are, of necessity, quantifiable. A brief review of them illustrates the versatility and power of TQT.

Future Assignments

First, we are analyzing the time required to respond to requests for computer repairs and to restore the machines to on-line service. Teachers depend upon serviceable computers for important technical instruction.

A second project is examining the time to respond to requests for psychological referrals and the resulting decisions regarding student placements. We all know how important timely as well as accurate diagnoses of students' serious learning problems are to the instructional process.

Third, a project team is studying the problem of purchase orders resulting in the excessive delay in receiving goods and services. Again, this system directly affects instruction.

Ready to gather initial data for these three projects, we anticipate significant improvements after applying TQT to these systems.

Total quality transformation represents a collection of skills and tools, proven to be effective in industry, that will be used increasingly to solve problems in the service sector. Public school districts render services that are supported by many quantifiable systems.

With visible and sustained commitment by superintendents and other top managers, applications of TQT can result in improved quality of educational programs and services.

Quality Savings: Reducing the Cost of Poor Quality

By Wendy M. Cullar and Terrelle Buckner

The Florida Schoolyear 2000 Initiative is a large-scale, systemic,and comprehensive effort to increase the productivity of public school students in Florida by developing, testing, and implementing a technology-based system of schooling.

The Initiative incorporates the concepts of learner-centered outcomes, systems design, quality systems, and the capacities of new technologies. It is jointly sponsored by the Florida Legislature, Florida Department of Education, Florida school districts,and the Center for Educational Technology at the Florida State University.

It is creating the new tools and processes for implementing the Florida Accountability and School Improvement effort known as Blueprint 2000.

The systems approach to the redesign and development of schooling guides the Florida Schoolyear 2000 Initiative.

This initiative began with the intensive study of research on curriculum, instruction, assessment, mission, student and family services, electronic systems, finance, logistics, and quality.

The next step was to develop design requirements and work plans for each area and for the system as a whole based on the most current research and good practices. Because quality impacts the functioning of all other areas of the Initiative, one design team is devoted exclusively to quality issues.

Members of the Quality Systems design team needed to understand the dynamics of quality and how to describe and control processes. This report documents the team's first experience in flowcharting school-based process within a quality system.

Our experience has encouraged us to continue to use basic quality tools to improve current processes and to build the quality system based on the success of demonstrated quality savings.

The following principles applied to each process that was flowcharted:

- **Build on success.** Team members were asked to select a process that clearly needed improvement. Project facilitators felt that if the tools of quality could not make a difference in obvious cases, there was little hope that the tools would be effective with less obvious applications.

- **Target 20 percent savings.** The goal here was not to set a specific target, but rather to specify the kind of savings that could be achieved, such as time, money, number of steps in a process, etc.

- **Begin with a flowchart.** Team facilitators felt that each district should start at a common place, but should also be free to develop their improvement process independently.

- **Write the procedures using guidelines from *The Quality System*.** Frank Caplan, consultant on this project, provided workshops and maintained an 800 number for instant training. In his book, *The Quality System: A Sourcebook for Managers and Engineers,* he outlines the structure followed by this project: flowchart, playscript, revise, test, rerevise.

The Quality Plan

Following Caplan's plan, the procedures that document process control are developed as follows: 1) select a process for improvement, 2) flowchart the selected process in its current form, 3) change the process and measure improvement, and 4) report savings.

1. *Select a process:* Each district was asked to select one process that was oper-

ating at less-than-optimal performance for application of the quality plan. Selected processes were employment application; attendance zone variance; grade reports; absentee monitoring process; referrals for exceptional students; psycho-educational referrals; and Section 504 procedures for students with disabilities

2. *Flowchart the process:* A flowchart, according to Caplan, is "a diagram that indicates the sequence of events and provides a basic outline of what is contained in the written portion of the procedure." The object of this portion of the exercise was to "outline the general pattern of events" in the selected process.

Flowcharting was accomplished manually or with flowcharting software. Each work team brought its plan to Tallahassee in December 1992 to share experiences. Frank Caplan reviewed the plans and gave specific suggestions for continuous improvement.

The final flowchart is used to write a *playscript.* Playscripts ("presentation of the materials as a play is commonly written") expand the flowchart by adding information on "who does what when."

3. *Change the process and measure improvements:* Charting the exact sequence of how a process occurs and who takes part in each portion of the sequence provided each district's quality team with the information they needed to improve selected processes and identify resource savings from their modifications.

After a playscript was created, team members identified parts of sequences of the process that could be improved, and then wrote new procedures. The new procedures were tested and revised until team members were satisfied that they had achieved success.

4. *Report the savings:* Measurements of resource savings were collected for each modification. Savings among the districts were measured in terms of time, personnel hours, number of steps, supplies, and computer time.

Reports from the Districts

Not all of the seven participating districts reached the same level of process improvement. Each district did, however, experience an improvement that yielded quantifiable success. Process improvement is a never-ending activity of the Schoolyear 2000 quality system.

Levy County

Ed Lovely undertook to revise the absentee monitoring process for Levy County. From his previous experience in the schools, he knew how involved the process was and felt sure of the support he would receive from the district principals' committee.

The absentee monitoring process was a 20-step process when he undertook the quality review. Through detailed flowcharting and playscripting, he cut the number of steps in half, eliminated the petitioning committee, and reduced the number of mailings per student from eight to three.

Besides these benefits, he also reduced the workload on each assistant principal and attendance clerk and saved department chairs from having to allocate time to petitioning committees.

Lovely is currently undertaking quality reviews on three other districtwide processes.

Orange County

The Orange County quality team reviewed the grade reporting process for middle and high schools. Representatives from the districts Information Systems Department, state and local Schoolyear 2000 design teams, and administrators and staff from the secondary feeder pattern schools began the quality review based on an initial flowchart produced by Information Systems.

Team members reviewed the flowchart and made several changes to clarify the process. Next, they incorporated detailed information from the schools into the flowchart to present a complete picture of the entire process.

The original process generated about 800 reports every nine weeks. On average, each report was 50 pages long and took two minutes to print. By making two changes to this process, the quality review team was able to save 35,000 sheets of paper ($532 annually) and 24 hours of computer time (48 personnel hours, $2,600 annually).

Because of their successes with the grade reporting process, the district is now applying the quality review to automate the student attendance process.

Madison County

Madison County began the quality process by reviewing the referral process for exceptional students.

Team leader Stuart Fenneman had several reasons for wanting to begin with this process. First, she felt that the referral process was already streamlined and therefore would be an easier training ground for learning the quality process than more complicated processes. However, she also knew that the referral process could be made even more efficient, especially because the district has more control over this process than is the case in other areas.

Finally, making the referral process more efficient would reduce the amount of time parents had to wait between initiation of the process and their meeting with school staff to learn the results. This would make the process more customer-friendly and would free up staff who were contacted repeatedly by parents wanting results before they were available.

How the process should work under **ideal** circumstances was not known before the quality team's review, so the task was to identify what actually was happening in the schools. Because the same process is in place at every school in the district, team members were able to ask guidance counselors, administrators, teachers, and parents from throughout the district to review their work and offer suggestions.

The initial quality review eliminated 20 minutes from each of the district's 300 annual referrals. The revised process is already being used by guidance counselors, teachers, clerical staff, and administrators in Madison County. Mrs. Fenneman sees other districts using the process with slight modifications. Benefits from the streamlined referral process include speedier dissemination of information to teachers for devising strategies, reduction in parent stress, fewer phone calls to administrators, and ultimately, more timely help for students.

The quality review team is now working on determining a reasonable amount of wait time for further streamlining.

Pasco County

Dr. Myndall Stanfill, Assistant Superintendent of Human Resources Development, headed Pasco County's quality review team.

Upon returning to her district with the task of implementing a quality review, Stanfill asked the director of personnel to recommend a process improvement need within his department. He identified a problem that had arisen when a supervisor of personnel position was vacated and economic conditions precluded filling the position immediately.

One duty of that position was staffing the administrator selection process. Through explicit flowcharting and play-scripting, the director, two personnel assistants, and Stanfill determined that about one-fifth of the supervisor's time had been devoted to the selection process.

Their analysis made them decide that the various responsibilities associated with the process, including many clerical tasks, could easily be reassigned to a personnel assistant already employed within the department.

Team members were not able to eliminate the needs for the Supervisor of Personnel position, but they were able to reapportion the workload so that management time is not spent on clerical duties.

Besides the $7,600 savings for the district (one-fifth of an entry-level supervisor's salary and benefits), Stanfill expects that when the district advertises for its next pool of administrators, the Administrator Selection Process will run more smoothly and efficiently.

Santa Rosa County

Santa Rosa County elected to apply the quality process to Section 504 procedures for students with disabilities. Joel

Corley, director of exceptional student education and quality work group leader, chose this process to help the district comply with a federally mandated law that requires physical, programmatic, and technical modifications to provide equal access for students with disabilities who are not in special education programs.

Before this exercise, no official 504 process was followed by the school district. Corley wrote the procedures manual using flowcharting and playscripting techniques, and then asked a team of district personnel, school administrators, and teachers to review his work.

The process is being applied this spring semester, and necessary modifications are being identified. To date, Corley knows that they must incorporate regularly scheduled data processing runs into the workflow along with a check to ensure that every school has entered the necessary data. Revisions to the process will be complete by fall.

Because the quality review was applied to a new process, baseline data is not available for comparing cost savings. However, the district is now in compliance with the law and has done so without adding staff or resources.

Volusia County

The problem of Zone School Variance Application was selected by Bill Tindall because it affected several other areas within the Volusia County School District. Further, there were special processes for psychological, physical handicaps, medical, curriculum, employment, racial balance, and administrative variance. The flowchart analysis suggested ways to improve each process by type of variance and improve the whole process for determining zone school variance request criteria.

Dixie County

James Bray, director of exceptional student education and student services of the Dixie County School System, selected the referral for psychoeducational evaluation because it was an obvious cost-saving target.

When students have school performance problems, emotional distress, or social dysfunctions, parents or school personnel can initiate the process to identify the source of the student's problem. Previously, the evaluation began by subjecting the student to a large battery of psychological and intelligence tests, costing the school $250 per evaluation.

Bray's expectation for the quality review process was to reduce the number of full-scale evaluations and to avoid assigning confidence-damaging labels to children who were capable of succeeding in the classroom, given the proper interventions and help.

When labels such as emotionally handicapped, learning disabled, or educable mental handicaps are assigned to a child, two to three times the normal funds must be allocated to serve that child. Under certain conditions children so-labeled could continue to function within the regular classroom rather than being assigned to a special education class.

Although the quality review has not yet been completed, Bray hopes that the district will be able to save about $20,000 by serving students in regular classrooms rather than assigning them to special programs.

Beyond the cost savings, the new referral process will save staff time and parent emotional stress and will eliminate wait time between problem identification and solution.

Summary

These seven districts, working collaboratively, constructed the foundation of a quality system for the Florida Schoolyear 2000 Initiative. Using problems that were important to their districts, Quality Work Team members individually applied skills learned through meetings with Frank Caplan and other experts to identify each step in the process, review the process for inefficiency, and revise the process repeatedly until it met their standard.

Quality savings, measured in time, dollars, and better customer service, are summarized in the table below. Above and beyond the cost savings, the districts learned to apply the quality review process. Their successes with its initial application will undoubtedly lead to future analyses of increasingly complex problems.

Calculated Savings

Levy	10-step process reduced to five steps
Orange	Personnel hours savings of $2,600 and savings of $532 a year for supplies and computer time
Madison	20 minutes less time for each referral @300 referrals per year
Pasco	Personnel hours savings of $7,000 (annually)
Santa Rosa	New Section 504 process added with no new personnel hours
Volusia	Personnel-hours savings of $23,000 (annually)
Dixie	Cost-savings of $20,000 expected (annually)

Dr. Cullar is Program Director of The Florida Schoolyear 2000 Initiative; Ms. Buckner serves on the staff. For more information on the Initiative, write Dr. Cullar, Center for Educational Technology, Florida State University, Tallahassee, FL 32306-4018.

Systems Thinking about Learning: The Paradigm Shift

By Ann Dinsmoor Case and Karla Baehr DeLetis

In education's traditional paradigm, we assess a student's learning by giving tests and assigning a grade. After giving a math test, we claim to know the value of s (representing the student). We say:

$$s = 78$$

The student earned a grade of 78.

Under the new paradigm, however, we realize that learning is not a simple linear process in which teacher input leads to student outcome. Learning is a process that involves complex interactions of many variables.

Teachers are one variable in the system. Students are another. Others include curriculum, instruction, assessment practices, organization, and leadership. So a better equation might be:

$$t + s + c + i + a + o + l = 78$$

In this equation, we are thinking *systemically* about learning.

The whole system of interactions that is the learning process is what we need to understand and work on, so our simplified equation is:

$$S = 78$$

S now stands for system. The **system** of interactions earned the 78.

Some years ago, scientists and engineers in manufacturing devised a model of this paradigm shift because workers alone were being blamed for producing faulty products.

They developed a fishbone-shaped, cause-and-effect diagram to represent manufacturing as a *process* involving machines, materials, policies, work conditions, and methods, as well as workers (see Figure 1).

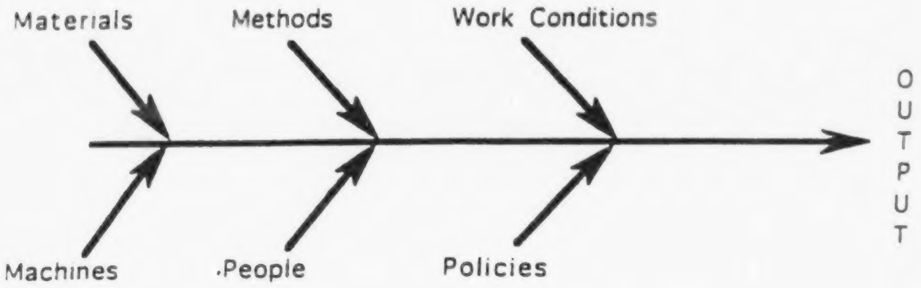
They attributed most variation in output quality to factors within the whole process rather than to the performance of individual workers. Dr. W. Edwards Deming and other proponents of Total Quality Management have developed and used this model in many applications.

In Figure 2, we modify the fishbone cause-and-effect diagram for education. We add arrows to show feedback loops, and it becomes a model of the learning process.

The paradigm shift for educators calls on us to stop attributing what students learn to an individual's performance (that of the teacher or student), and instead to look at the whole system for ways to improve the outcome -- the quality of student learning.

In this new way of thinking, the learning process has seven major variables:

Figure 1. Fishbone Cause and Effect Diagram for Manufacturing



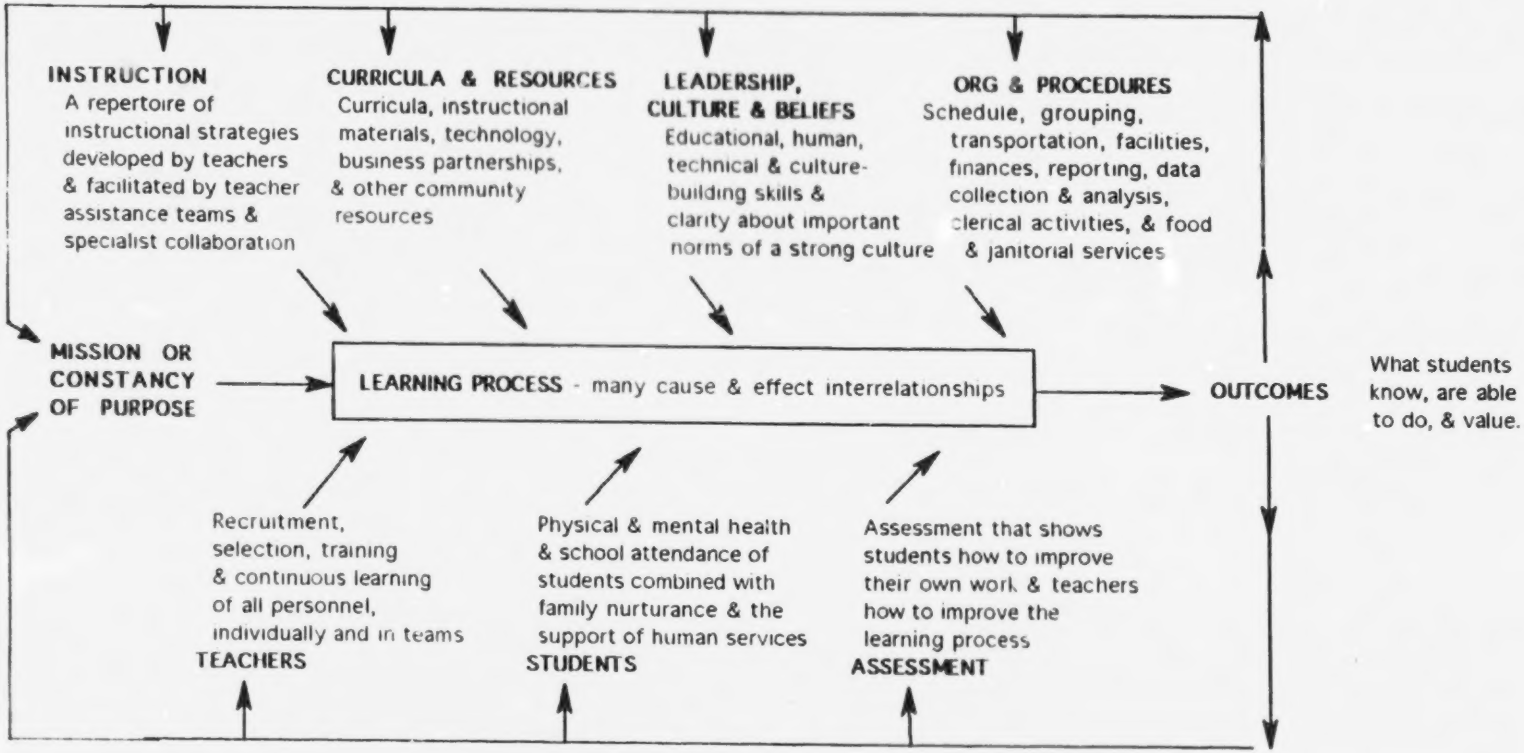

INSTRUCTION
A repertoire of instructional strategies developed by teachers & facilitated by teacher assistance teams & specialist collaboration
CURRICULA & RESOURCES
Curricula, instructional materials, technology, business partnerships, & other community resources
LEADERSHIP, CULTURE & BELIEFS
Educational, human, technical & culture-building skills & clarity about important norms of a strong culture
ORG & PROCEDURES
Schedule, grouping, transportation, facilities, finances, reporting, data collection & analysis, clerical activities, & food & janitorial services
MISSION OR CONSTANCY OF PURPOSE
LEARNING PROCESS - many cause & effect interrelationships
OUTCOMES
What students know, are able to do, & value.
Recruitment, selection, training & continuous learning of all personnel, individually and in teams
TEACHERS
Physical & mental health & school attendance of students combined with family nurturance & the support of human services
STUDENTS
Assessment that shows students how to improve their own work & teachers how to improve the learning process
ASSESSMENT

Figure 2. The Learning Process as a System of Interactions

- curricula and resources
- instructional methods
- teachers and other personnel
- assessment practices
- organization and procedures
- leadership, culture, and beliefs,
- the students themselves.

When we use systems thinking to understand learning as a process of complex cause-and-effect interactions among many variables, we stop blaming one individual or one factor. And because each of us is a part of that system, we are empowered to be part of the improvement effort.

In our learning process diagram, we look for feedback loops that inform our efforts to improve, and we recommit to the mission that drives the learning process toward the student outcomes we want.

In short, this model shows student learning as the outcome upon which we focus. The learning process, with seven major factors or variables that interact with one another, is what produces the outcomes we want. And the whole learning process is driven by our vision or mission, our "constancy of purpose" in the language of total quality proponents.

Learning by example

As change-makers meet resistance because staff are entrenched in old ways of thinking, they would do well to orchestrate paradigm shifts deliberately. We can learn about making paradigm shifts from developers of curriculum and instruction.

An example: some science teachers have found that young children believe winter coats are warm. Children have heard adults say, "Wear your warm coat today," so many believe their winter coats are actually warm. In a simple experiment, children are given thermometers to put in their coats that are hung in a cold closet. They are surprised to find that their coats are not warm.

Based on life experience, we develop intuitive understandings and common sense theories to explain our world. As with children experimenting with the thermometer, new experiences enable us to shift our thinking, to build more complex theories.

Educators have traditional beliefs and understandings about teaching, learning, and leading that have been passed down over time. Many have served us well.

But now we need to identify these traditional understandings, scrutinize them, and deliberately replace those that no longer add value to learning. When we consciously identify old theories, beliefs, and understandings and replace them with new ones, our efforts to improve the quality of student learning will be less confused and more focused.

Debunking "native intelligence"

One common and pernicious traditional understanding is that intelligence is an innate ability that determines how well children will achieve. In this old paradigm, intelligence is distributed along a normal bell curve.

We predict learning outcomes, form expectations, and modify curriculum and instruction for students according to this understanding. When we assume that achievement will fall along a normal bell curve, we expect about 1/6 of students to achieve poorly, 2/3 to attain only average achievement, and only 1/6 to achieve high levels of skill and understanding.

In other words, even though we believe that the knowledge, skills, and values that students learn in school are critically important for their futures (and for the viability of the nation's economic future), we don't believe that all students have the potential to acquire them.

Paradoxically, when adults are asked about something as important as their driving skill, most believe they are good drivers. Gone is the assumption of a normal bell curve distribution!

How is it we believe in our own ability to perform an important skill such as driving but are stuck in an old paradigm about children's ability to learn skills that are critically important to their future?

Faculty and administrators in the Wellesley, Mass., Public Schools are challenging old paradigms and using systems thinking to overhaul the learning process.

Revisions in science at the Wellesley Middle School exemplify the changes. As a result of the faculty's commitment to continuous improvement, more students than ever are now learning more challenging science concepts.

Until recently, only 40 percent of the middle school's 225 eighth-graders were thought to have the skills and motivation needed to succeed in the challenging science course, "Introduction to Physical Science (IPS)." IPS is a nationally recognized laboratory-based course through which students conduct experiments to learn fundamental concepts of physics and chemistry.

Two years ago the faculty and administrators agreed that their beliefs needed a paradigm shift: What would the learning process need to look like, their principal asked, if they acted as if they believed that all 225 students could successfully earn grades of B or higher in the IPS course?

A team of science teachers and special educators took on the challenge. They agreed that the learning process needed major work and set out to focus on the seven general variables that affect the learning process.

A sampling of five major changes in the learning process that the team made illustrates what happens when educators focus on the learning process itself, rather than on the student or teacher alone:

Organization and procedures. As part of a schoolwide paradigm shift, the team joined colleagues in asserting that homogeneous grouping of students was helping to produce the bell curve of achievement that they rejected.

They replaced separate science courses taught in homogeneous groups with a single course -- the top-level IPS course -- taught in heterogeneous groups. The team believed that not just the low- or middle-achieving students had something to gain from heterogeneous grouping. Even the highest achieving students were expected to gain the confidence to question, explore, and risk making mistakes -- skills essential to master science concepts.

Instruction. Traditionally, IPS instruction offered virtually no direction to students about how to plan and structure their laboratory write-ups. The team recognized that this "sink or swim" tradition of IPS instruction would pose problems for many students, so the team wrote guides for the experiments conducted through the first three months. The instructions in the guides gradually faded until, by November, students were planning and structuring their own laboratory write-ups.

Curricula and resources. The team identified the experiments it saw as essential for students to do so they would grasp the core concepts.

The teachers prepared videotapes of each essential experiment. Students viewed the tapes as a full class, in groups, and individually after the labs were conducted. In this way, they (a) review critical steps and conclusions; (b) ask powerful questions about variation between their own data and the data of others; and (c) independently assess the quality of their own lab work against a benchmark.

Assessment practices. The national IPS unit tests are challenging, even for students with strong reading and mathematical skills. The team did not want to dilute standards, yet they wanted to find a way to make the tests more accessible to weaker readers.

More importantly, they wanted to encourage students to use the results of the tests to improve their own performance. As before, teachers administer unit tests to all students. Now they often use the results to create heterogeneous teams comprised of students with high, low, and average scores on the unit test.

Before seeing the results of their individual tests, each student works within the team to complete the same unit test, learning more from the interaction with peers. Then each student compares the score on his or her individual test with the team's score. The student can then do an item analysis to improve future performance.

Teachers and other personnel. The science teachers and special educators meet weekly to plan and troubleshoot. By coteaching an IPS course each year, the special educators learn what the science teachers expect from all students in the course. Science teachers, in turn, learn diagnostic and instructional strategies from special educators that help make the science concepts understandable to more students.

The middle school team uses data to examine how the changes it has made have affected student learning and to help them identify further improvements they need to make. At the end of the first year, 54 percent of all eighth-grade students earned A's or B's in IPS.

While still far from their ultimate goals, the team was encouraged. They knew only 40 percent of all eighth-graders had even enrolled in the course the previous year.

The experience at Wellesley Middle School offers a practical example of paradigm shifts in action. The faculty first shifted to systems thinking. Then it focused on beliefs about learning, another paradigm shift. They rejected the old paradigm that academic achievement must conform to the bell curve and that learning is attributable only to the performance of the students or their teacher.

The faculty team looked to seven critical variables -- the entire learning process itself -- as the arena for making the improvements that would result in high achievement for all students. Their students' learning is being well served by their shift to systems thinking.

For more on systems thinking, see:

Leonard, James. *Transformation 101: Introduction to a Deming Road Map for Improving Our Schools*, 1989. Woodstock, Conn.

McGonagill, Grady. *Overcoming Barriers to Educational Restructuring: A Call for System Literacy*, 1993. AASA and National Education Association.

Senge, Peter. *The Fifth Discipline: The Art and Practice of the Learning Organization*, 1990. Doubleday/Currency, N.Y.

For more on expectations, see:

Howard, J. *Getting Smart: The Social Construction of Intelligence*, 1990. Efficacy Institute, Inc., Lexington, Mass.

Saphier, J., and R. Gower. *The Skillful Teacher*, 1987. Research for Better Teaching, Inc., Carlisle, Mass.

Villa, R., J. Thousand, W. Stainback, and S. Stainback. *Restructuring for Caring and Effective Education.* Paul H. Brookes Publishing Company, Baltimore, Md., 1992.

For more on culture and beliefs, see:

Saphier, J., and M. King, "Good Seeds Grow in Strong Cultures," *Educational Leadership*, March 1985.

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Quality Tools Help Identify and Solve Problems

By Peter DeDominici, Principal
Denver Place School, Wilmington, Ohio

Early in the school year, the staff of Denver Place met to discuss what they perceived were the needs of the school in an effort to seek methods to improve the product for our "customers" -- the students. The one aspect that dominated this needs survey was discipline.

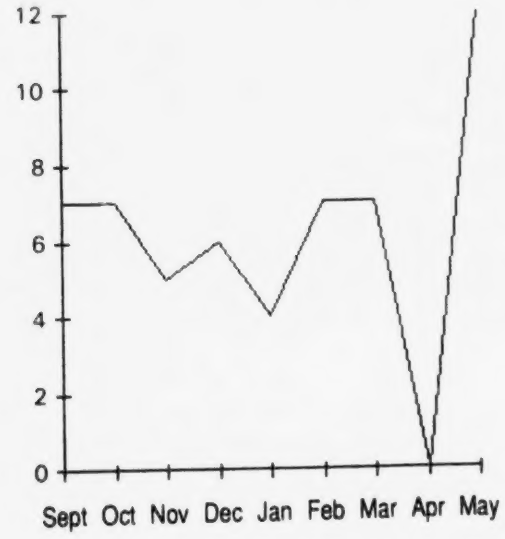
As principal of Denver Place, I must keep records of disciplinary actions so case files can be checked when repeat offenses are brought to my attention. During 1991-92, I created a computer database so we can obtain more accurate and easily accessible information.

We use these databases to determine courses of action and to display the information to teachers and other staff members. At the end of the first year of operation, the information presented to staff indicated that of more than 300 referrals to the principal's office, only 19 were female students. Also, in a district that is 95 percent white, more than 20 percent of referrals were African-American students.

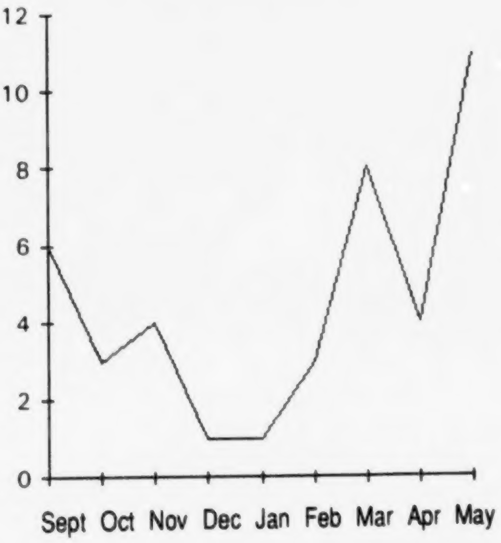
We developed a program in 1992-93 that incorporated the concept of peer mediation. We hoped that through the efforts of their peers, students would respond more favorably to appropriate behaviors. We decided to compare the disciplinary reports of 1991-92 with those to date in 1992-93. The variable was a new peer mediation program called Fussbusters. The program is based on one from the Mediation Center in Asheville, N. C.

We developed three types of charts to study the statistics -- histograms, run charts, and Pareto charts. We compared only fourth- and fifth-grade reports because the Fussbusters program is effective at these levels; we believe that younger children are not

Run chart of discipline cases
Grade 4, 1991-92



Run chart of discipline cases
Grade 5, 1991-92



mature enough to grasp the program's concepts.

We plotted discipline cases on a run chart. The vertical axis showed the number of reports, and the horizontal axis indicated the months of the school year. The chart showed that behavioral problems grew sharply in March and May 1992. September also saw a rise in reports, with numbers tapering off as we moved into the fall months. The charts indicated that many reports were made in May for both fourth and fifth grades. We believe this rise is related to warmer weather when more interactions occur outside and more students come in contact with one another.

By comparison, the 1992-93 run chart showed a growth in March referrals for grade four but fewer referrals for grade five. A significant drop was noted for both grades in September. Even though the Fussbusters program was not yet in effect, preparations were underway. Teachers had begun to identify students they felt would benefit the most from participating in the program.

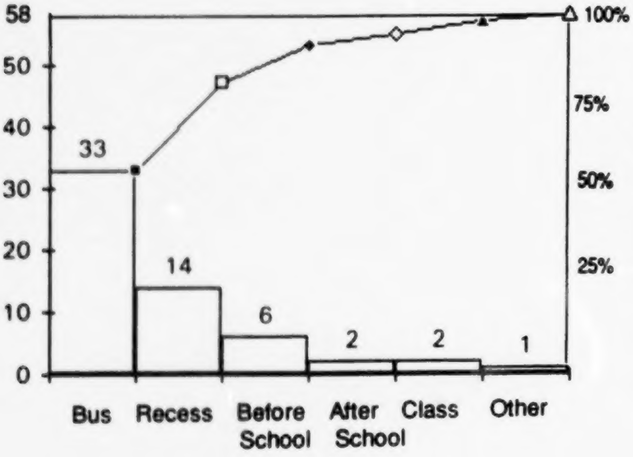
November showed an increase in reports from the previous year, but once the program was in place, we saw a significant decrease. Fifth-grade incidents increased in October, while Fussbusters were being trained, but we saw a drop in November and a leveling off in December and January.

The Pareto charts were arranged according to reported offenses by grade level. In grade 4 in 1991-92, most reports were misbehaviors during recess. The offenses were fighting, arguments over sporting events, and other student disagreements. Misbehavior on the bus was the most prominent category for fifth grade. For both grades, the major areas for reports were the unstructured time of bus and recess.

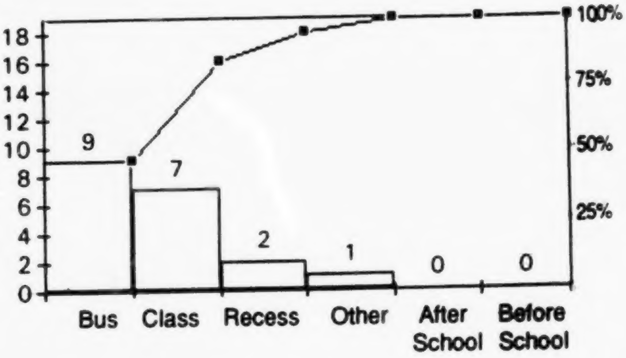
The Pareto charts proved most significant in revealing information compared to the 1992-93 charts. In both grade levels, bus reports were the major reporting area, yet the number of incidents dropped significantly.

Although the 1992-93 reports are incomplete, the dramatic reduction in reports is remarkable. From a high of 33 reports in fifth grade last year to only nine by the end of March was significant. Fussbusters do not operate on the buses, only on the playground, but even those reports were cut in half.

Discipline cases
Grade 5, 1991-92



Discipline Cases
Grade 5, 1992-93



Fourth grade went from 13 in 1991-92 to five by the end of March 1993.

We hope that this information, as it is presented to the Fussbusters, will encourage and help them develop an action plan for the rest of the school year and create a plan for 1993-94 with an even greater scope. We plan to include more fourth- and fifth-graders in the plan, along with the Fussbusters, to create an effective school climate.

The Grading Game

By Philip Geiger, Superintendent of Schools, Piscataway, N. J.

Grading has always been more than mystical to me. It is perhaps the most mystical activity that American educators perform.

I remember the day while completing my M.B.A. at The Wharton School of the University of Pennsylvania when the professor told the class of 37 practicing professional managers that he thought half the class would fail his accounting examination. As the only educator in the group, I couldn't resist a comment.

"Professor," I said, "wouldn't you agree that the performance of students is directly correlated to the quality of instruction they receive?" I left my question a little ambiguous. It could suffice for a purely rhetorical question. But this was Wharton, and no one was shy.

"Dr. Geiger," the professor bellowed. Now deep in fear, I wondered whether I had just kissed the $1,500 for this course good-bye. The professor continued, "Dr. Geiger, more of you will pass this examination than I originally thought." And we did!

The grading game

A strange occurrence? Not by a long shot. Last year my daughter arrived home from her suburban high school outside Boston to advise me that one of her teachers (I was superintendent there at the time) announced to her class that she does not give A's. According to the teacher, no one is worthy of such recognition or accomplishment from this direct descendant of Aristotle.

Unfortunately, many insecure teachers exist out there who believe appearing unapproachable and impenetrable is stimulating to the gifted mind. For most of us, this is simply discouraging. Then we have those who use grades to play mind games. "I gave him a B even though he earned an A because I know he can do better."

"I never give remedial students higher than a B; after all, they aren't working on grade level!"

"Yes, he knows the work and he's received nearly perfect examination scores throughout the semester, but he rarely speaks in class. Class participation is 50 percent of the grade."

A radical proposition

In the October 29, 1991, edition of *School Board News*, Dr. Thomas Shannon described some of the criteria he thought might be considered when awarding the New American Schools grants. One was "dropping old-fashioned student grading systems." Federal grant or not, I'm with Dr. Shannon.

I've always believed that grades really should answer only one question: did the student learn what he was taught from one point to another? If the student had, he got a good grade, an A if his work was exceptional, beyond the norm.

If he learned what was necessary but didn't do work far superior than the overall group, he received a B.

If the student did not do his homework, I would add a note to his report card, saying: "Dear Mom and Dad: Your son knows his work but he is irresponsible about doing his homework. Can we work together to have him learn greater responsibility so he can perform in an even more superior fashion?" Mixing academic achievement and study skills in one academic grade creates confusion.

Class participation is the giant "fudge factor." Purely subjective and rarely based on substantial record keeping, this criteria is the primary weapon when playing mind games.

Class participation can easily move the grade up or down at least one letter.

So when I proposed recently a more simplified grading system, A, B, or I, the criticism startled me. The plan was easy. All students were expected to reach competency in their studies. She couldn't opt out, squeak by, get through on a C or D (whatever they meant). She had to actually learn the stuff the teachers taught her.

If she learned as she should and accomplished the expectations of the program, she received a B. The expectations would be clearly established before she began the course and she had to learn those skills and concepts to an acceptable degree of mastery.

If she did exceptional work and learned more than most, going beyond the basic requirements, she received an A. So far so good, for most people. But if she didn't master the subject matter, she got an I -- incomplete.

Why an incomplete? Because schools are organized for students to learn, and clearly if the student did not master the material, she needs to do more and the teacher needs to provide alternative strategies: reteach, addressing alternate learning modalities, or provide additional time for mastery.

The teacher didn't fail, but neither did the student -- but they cannot simply get off the hook by taking a C or D. They have got to work together to meet the standards. In essence, we'd be raising the bar -- increasing the expectations for everyone. There would be no easy out.

Critics say the plan would encourage giving away grades. Teachers would be forced to give A's or B's. Why? Because teachers wouldn't want to have the same kids who didn't learn the first time. I wondered if we had all done well in our accounting examination at Wharton -- or had the professor simply graded us well to "move us along?"

As superintendent, I was willing to advocate for late afternoon and evening sessions for students who needed the help with teachers willing to stay for extra pay. Saturdays and summers would be additional alternatives.

Settling for less

To somehow extrapolate that an "incomplete" would require a teacher to lower the standards is purely a commentary on the complacency we've accepted regarding our goal toward educational excellence.

One of the most interesting objections to the A, B, I scheme was concern that colleges could not distinguish our students from one another. The student who took 44 weeks to learn algebra couldn't be separated from the one who finished in 40 weeks.

Since 80 percent of America's high school teachers lecture students, how would this new arrangement distinguish the verbal learner from the visual learner, who may have had problems with a teacher who lectures most of the time?

Furthermore, how could we tell which kids had moms and dads who went to college and have good jobs vs. those who are poor and may still be the first in their family to make it to the Ivy League?

Be assured, the A, B, I grading scheme is no panacea for solving the grading problem in schools today. But there must be a positive way for us to communicate student progress, one that reflects the philosophy that all can learn, one that is free of psychological engineering and fair. There must be a way to ensure that all kids learn what they are taught.

Schooling is not another "garbage-in, garbage-out" situation. If not A, B, and I, what? Undoubtedly there are many solutions to the problem, and clearly, there *is* a problem.

Changing the School System's Culture, Values, and Behavior

By David Gangel, Superintendent
Rappahannock County (Va.) Public Schools

I am not a TQM expert. I am an educator, a superintendent, and a practitioner. I believe that TQM is the best hope for educational reform. It is not a quick fix or a silver bullet, however. It takes time and it is hard work.

Businesses using quality strategies have found that it takes five to eight years to make a turnaround. In Rappahannock, we have been involved in quality for three years. We have had our successes and some pains.

Rappahannock County is 75 miles west of Washington, D.C., in the Blue Ridge Mountains. It is small and rural. We have 1,029 students, a whopping increase of 37 students over last year.

We have 85 teachers and 129 total associates in the organization. We have two schools. One-third of our bus routes are over dirt roads.

Our TQM philosophy stems from those of W. Edwards Deming and Joseph Juran, and our skills derive primarily from the Xerox Corporation.

Our major focus is that we are customer-driven. We have internal and external customers -- lots of customers: parents, students, teachers, principals.

Quality is continuous improvement. Our system is not broken; we are improving it. We focus on fixing the process, not fixing the blame. We are looking at how the process itself delivers the results.

We try to be data-driven. Instead of doing things the way we have always done them, we use data to make decisions.

We look at education as a system instead of what is best for "my" department or grade level. We ask "What is best for the student?" and we strive to optimize the system.

Also, we look at reducing costs. It costs more to do something over again.

We use cross-functional teams. Trust is difficult, but it is the cornerstone of TQM. We try hard to reduce fear. We try to have a disciplined process for continuous improvement and problem solving.

Xerox provided our initial training. They brought people in as trainers, but early on we found that to be self-sufficient, we have to do the training ourselves.

We use the Xerox training and now have six trainers; 87 percent of our staff has participated in a 3-and-a-half or 4-day quality training session.

We stress team building, how to communicate and work together, using the problem-solving and quality-improvement processes.

We use these in two ways. One is a voluntary procedure. Anyone in the school system -- a student, parent, teacher, or staff member -- may raise an issue for improvement. We'll bring together a cross-functional team to look at the problem. Staff members volunteer to serve on these teams.

The second procedure relates to our strategic plan. The School Board sets out a strategic area that needs to be improved. Our instructional leadership team develops a plan and defines objectives and goals. We bring that down to individual grade levels and departments.

This year we have used the Baldrige criteria; they are helping us move from the issue-by-issue approach to one that is systemic.

Last year we had ten project teams working. This year we added three more. Our topics include student emergency diagnosis procedures, building expansion, guidelines for tenure, finding more space, high school discipline, our K-3 reporting system, scheduling for our reading program, security of our elementary buildings, transportation, parent satisfaction, and the pull-out schedule.

Sixty-eight percent of our associates have volunteered to work on these teams.

TQM is difficult because you are changing people.

Change is hard, but we are changing the culture, the values, and the behavior of our school system.

Reprinted from the November 1992 issue of *QQ: the Quest for Quality* in Virginia Public Schools, newsletter of the Virginia Department of Education.

Rappahannock County is one of seven school districts participating in the department's federally funded Commitment to Quality Project; the Xerox Corporation has provided training for these districts.

Eighth-Grade Math Students Learn New Problem-Solving Skills

Jim Burkholder has taught math for 25 years, all but two of them at Johnson-Williams Middle School in Berryville, Va. The school draws its 415 students from all over Clarke County, which nestles in apple country in the shadow of the Blue Ridge Mountains.

But for him and for 51 of his eighth-graders, this year has been like no other. Soon after Jim participated in Xerox's New Employee Quality Training course last April, he began using quality management techniques with his classes. In August he got the idea of revising the way he teaches his eighth-grade general math classes. He sought and received his principal's approval.

First he asked the 13- to 15-year-old students to brainstorm problems they saw around the school. They suggested many, some "far out." Working in teams of five, they began to collect data on these problems.

The students spent three to four weeks learning how to display the results of their research. They learned about means and modes, and about Pareto charts, histograms, circle and line graphs. Then the teams presented their findings to the rest of the class and each class used weighted voting to decide which issue to pursue.

Fifth-period students opted to ask the cafeteria to offer juice as an alternative to milk for lunch; now they must take milk with their lunches even if they don't want it. If juice were available, the students have been told, they would have to pay an extra 25 cents for it.

Sixth-period students decided to campaign for air conditioning for the entire school.

Seventh-period students are trying to get a kitchen restored in their school. The school's kitchen was taken out in 1988; their meals are now prepared in the high school cafeteria a mile away. The area that was a kitchen now serves as the County Purchaser's Office.

Many skills needed in the workplace have surfaced during the students' six months of problem solving. To get information they needed, students had to interview many adults in the school administration and in the community. One group canvassed neighbors of the school to ask if they'd be willing to pay higher taxes to have a kitchen restored to the middle school. Some gave them money, which had to be returned.

A handful of students refused to talk to adults to get information. But all see that dealing with the public will be a part of their future.

Other problems arose. The students often tied up the school's phones; this bothered some staff members. Townspeople aren't used to seeing students out in the community during school hours. Teachers wonder why they're not in their classroom.

Several teams called the same source for information. And the kids worry that by the time they achieve their goals they will be in high school and *other* students will be the ones who benefit.

The students called contractors for estimates. They talked to the cafeteria staff and to School Board members and members of the Board of Supervisors. They studied state and federal guidelines for school lunches. They searched the school budget to find funding for capital improvement projects.

Students are now fine-tuning their presentations to people who can help solve the problems they have identified. They are preparing Gant charts and graphs to display their data. The

School Board will soon hear from the juice-in-the-cafeteria students. The restore-the-kitchen group will propose that students help raise half the cost by sponsoring dances and a school fair. They vetoed fundraising ideas such as fining students who didn't do their homework or chewed gum in school.

When they used weighted voting, all three classes ran into problems with fractions, so problem-solving activities were put on hold for three weeks while they studied fractions. The cafeteria group studied perimeter and area.

Jim brought in ads showing that local employers need quality control people. One offers high school graduates $7.50 an hour as trainees, $10 an hour when trained. "This is the world you'll enter in a few years when you leave school," Jim tells his students.

"Employers need people who can solve problems, people who know how to collect data, display the results of their research, and work in teams to find good answers."

What have Jim's students learned this year? That math has real-life applications; that even if you're not a math whiz, you may have other skills useful in solving problems; that you are more persuasive if you bring factual information; and that working in teams can be rewarding, even fun.

Next year, Jim says, he will spend more time teaching interactive skills -- proposing, building, bringing in and shutting out, etc. He will stress telephone skills.

"We had to develop trust because the kids are often out of eyesight and I'm responsible for them," Jim reflects.

This method of teaching is definitely different, and better for students, he believes. "It's not been easier for me -- I had to adjust after all these years of teaching math review in eighth grade. But it's been rewarding, and I know I can improve it next year."

Jim is one of 12 Clarke County quality trainers. Seventy-five of the school system's 217 employees have completed basic quality training. Quality practices are now the district's "way of life."

Reprinted from the March 1993 issue of *QQ: the Quest for Quality* in Virginia Public Schools, newsletter of the Virginia Department of Education.

Clarke County is one of seven school districts participating in the department's federally funded Commitment to Quality Project; the Xerox Corporation has provided training for these districts.

Striving to Meet Customer Needs at Poquoson Elementary

Elmer Seward, principal of Poquoson Elementary School (grades 3-5), and third-grade teacher Susan Brown began to model what they had learned in their Xerox training in staff meetings.

Seward turned to one of his major customers (his School Improvement Committee) and asked how he could serve teachers to meet their needs better.

Committee members told him they wanted to be more involved in decisions about staff development, scheduling, and student placement.

Seward set up committees on these topics and asked for volunteers for each. The committees brainstormed lists of teacher needs in each area. Seward then walked them through the "list reduction" technique.

The student placement committee brought ideas on reading placement to a faculty meeting. Teachers listed the pros and cons of each idea, then did weighted voting. The school has implemented all the ideas on which consensus was reached.

The scheduling committee used the same techniques. Seward asked those who voted 0 (can't live with) or 3 (very important to me) to meet with him after school to see how differences might be worked out.

Two-thirds of the teachers wanted him to draft a schedule that would give all children a two-hour, uninterrupted language arts period in the morning, preserve longer periods for physical education, and give teachers a 30-minute planning period and a 30-minute duty-free lunch.

On July 23, the principal hosted a teacher luncheon at which he presented the proposed schedule. The teachers liked it.

Only one teacher volunteered for the staff development committee so this topic was deferred. Staff development for whole language will be planned.

Eleven of Poquoson Elementary's teachers participated in quality training this summer. To receive graduate credit from Norfolk State, teachers were required to complete a "quality" project.

One teacher team asked students to survey and collect data on how much parents model reading at home. They found that Poquoson parents read a lot at home.

Another team achieved its goal of improving student scores on flexed arm hang and pullups.

Teachers trained this summer serve as the School Improvement committee. Working with other volunteer teachers, they use the Xerox problem-solving techniques on identified problems.

Two teams are using the Quality Improvement Process to improve reading and science instruction. Parents also serve on these Teams.

Reprinted from the November 1992 issue of *QQ: the Quest for Quality* in Virginia Public Schools, newsletter of the Virginia Department of Education.

Poquoson is one of seven school districts participating in the department's federally funded Commitment to Quality Project: the Xerox Corporation has provided training for these districts.

Identifying the Needs of Customers Who Are Homeless Students

By Paul Rux, President
Information Consulting Services, Dodgeville, Wis.

More than 100 homeless children were enrolled in Marquette Middle School in Madison, Wis., in 1991-92. They lived in transient welfare housing until social services could help stabilize their families.

One of two teacher teams that had been trained in quality management by the University of Wisconsin targeted these students as "customers" and asked them to identify their needs. Team members found their answer painful: Students said they wanted to be called by name. Because they remained in the school only 30 days on average, teachers did not call their names in class or when taking roll.

The TQM team flowcharted school processes that touched these transient students to discover leverage points that would combat this toxic anonymity. Finding none, they designed a new process. Now mentors meet with homeless students at the start of each day in special peer sessions to assure personal identity and recognition. These students' attendance has visibly increased.

The TQM team, excited and enthusiastic over its ability to make a difference, has moved on to test its hypotheses against further student data.

TQM: A Community College and School District Partnership

By Roger Place, Tracy Kosman, and Katherine Vitale

Recently, educators have become attracted to Total Quality Management as a way to manage schools for quality, both in the classroom and in administrative operations. But with such restructuring initiatives as outcome-based education and site-based management commanding their attention, many feel they have enough on their plates already.

Moreover, most districts, smarting under budget squeezes, can't afford costly private consultants to help launch the TQM effort. Administrators are concerned about how they can fit TQM onto their already crowded agendas and into their already stretched budgets. And they wonder where they can find an appropriate provider.

Two school districts confronting these questions found different answers appropriate to their particular needs. Both involved a partnership between the district and the local community college.

Delaware County Community College, located in the Greater Philadelphia area, has been implementing Quality Management and providing TQM training to local businesses, hospitals, and government agencies since 1986.

The college recently decided to customize its programs to appeal to the needs of nearby school districts. Since the relationship between the college and local districts is one of customer to supplier, it made sense to strengthen that tie.

If DCCC could help the districts do a more efficient and effective job of educating students and managing their operation, the college itself would benefit. From the school districts' point of view, a partnership with the local community college could be just the thing to get a TQM initiative off the ground.

The idea blossomed with the Springfield School District, which helps fund the college. Superintendent Roger Place saw the opportunity to get some help with its TQM start-up at a price the district could afford from an institution that was truly interested in its success.

The partnership began when six administrators, including the superintendent, principals, and central office administrators, attended the college's "Introduction to TQM in Elementary and Secondary Education," a two-day course on basic quality management principles. The course focuses on what's involved in changing the processes of teaching, learning, and administration, including empowering people to improve quality through data-based decision making.

The Springfield administrators got excited about what TQM could do for them. The next step was for them to think about possible projects to work on in their own schools.

The administrators considered opportunities, problems, or challenges that they faced in their schools or departments. Aware of the difficulties encountered with TQM initiatives in which the problem to be addressed was too broad, the superintendent asked that these projects be limited in scope and that the administrators take small bites as the TQM process was initiated.

In response to the superintendent's request, about 30 projects were conceived. With few exceptions, the projects were of manageable size, could be performed by one administrator or by a very small team, and had raw data readily available for analysis. The college served as an accessible resource for questions that developed.

The next step was some additional training that would give the administrators the skills they needed to get started. A two-day course in effective team building enhanced their knowledge of the dynamics of team participation, conducting effective meetings, giving constructive feedback, and managing difficult situations. The director of personnel trained the administrative team in these areas.

Next, the team took a two-day course in the basic tools of TQM plus some additional training in Statistical Process Control, in which they learned from DCCC staff how to collect data, construct Pareto charts, create cause-and-effect diagrams, calculate control charts, and flowchart their processes.

Back in their schools, the administrators began to apply what they had learned. The administrators, with the teams they developed, used the TQM tools to collect data and analyze findings.

The superintendent, an assistant principal with expertise in statistics, and the director of personnel trained in team building; they were available to administrators as projects were selected, implemented, and analyzed.

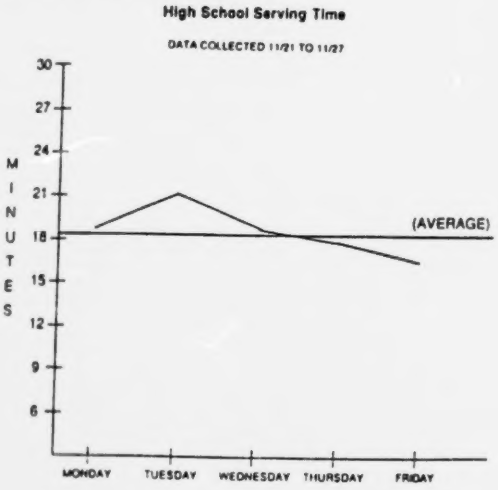
They provided structure by developing a one-page form to be used to state the problem, identify which quality tools should be used in data analysis, and outline the conclusions reached. The key ingredients of the form were derived directly from the training received at the community college.

One of Springfield's first TQM projects grew out of the realization that the district was not meeting the required minimum of classroom hours prescribed by the Commonwealth of Pennsylvania. Additional time had to be found, but where?

A likely solution, reducing the lunch period from 45 minutes to 30 minutes per day, seemed certain to generate strong objections. Surely it would be impossible to serve lunch to several hundred students on different shifts and still allow them adequate time to eat within 30 minutes.

In line with the TQ principle of data-based decision making, the team collected data on the time required to serve lunch to all students, measured from the time the lunch bell rang to the moment when the last student left the cafeteria.

The following chart displays data for one of the three weeks during which data was collected.



NUMBER OF MINUTES TO SERVE ALL STUDENTS LUNCH

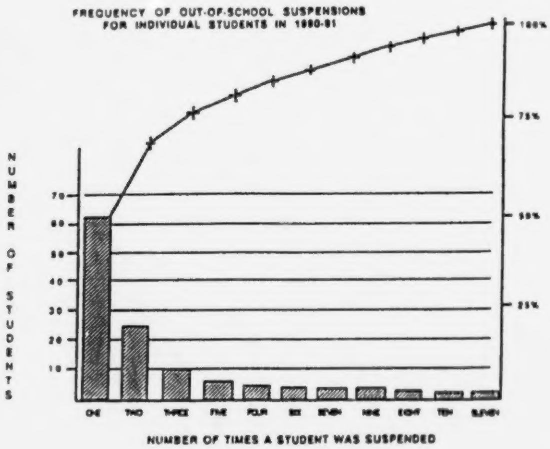
To everyone's surprise, the average time required to serve lunch was only 18 minutes, the maximum 22 minutes. The lunch period was reduced without protest, and 17 minutes of instructional time was added to the school day.

As often happens with TQ projects, once the examination of an issue or problem begins, unexpected information emerges. That was the case with the controversial issue of school suspension.

The administration and board had received numerous complaints from working parents about excessive out-of-school suspensions of their children.

Due to work schedules, the parents were unable to monitor students who were suspended. Intense interest was expressed in a staffed in-school suspension center.

Before considering this cost-generating solution, the team collected data and created a Pareto Chart that revealed that 50 percent of suspensions are one-time only situations, with another 18 percent occurring twice in a year.



Thus the data did not bear out the claim of repeated suspensions. Perhaps even more important, investigation of the issue revealed that out-of-school suspension is a highly effective disciplinary tool.

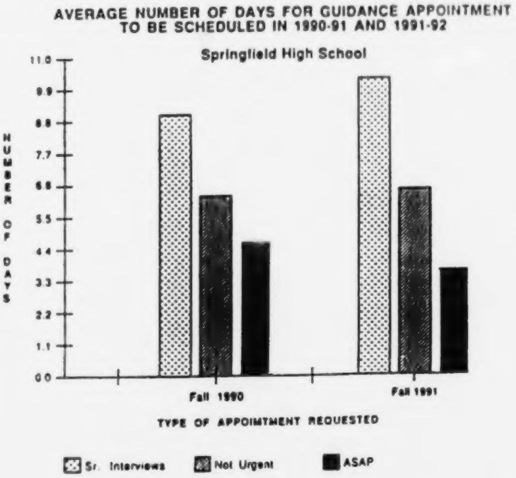
Based on this information, the Board decided not to implement an in-school suspension center.

Sometimes when process improvements do not generate the expected results, the data can lead to other solutions. Such was the case with another Springfield TQM project.

After a substantial decline in enrollment, the number of counselors at Springfield High School was reduced from five to three. However, enrollments began to creep up again in 1991-92, from 859 that year to a projected 961 for 1993-94.

At the same time, the percentage of students going on to post-secondary education remained fairly constant at 80 percent.

The counseling staff was overburdened and seniors complained of long waits to see guidance counselors. Following the TQ focus on managing processes, the district developed a new procedure for scheduling appointments. Everyone hoped that getting some order into the process would improve things, but unfortunately the data showed otherwise.



Urgent appointments were handled more quickly, but the objective of the changed process, more timely and efficient management of non-urgent interviews, was not achieved.

However, investigation of the process, guided by a TQ-trained counselor, led to other improvements in the effectiveness of the guidance office. The data collected allowed a strong case to be made for hiring an additional counselor. Such a recommendation has been made to the Board.

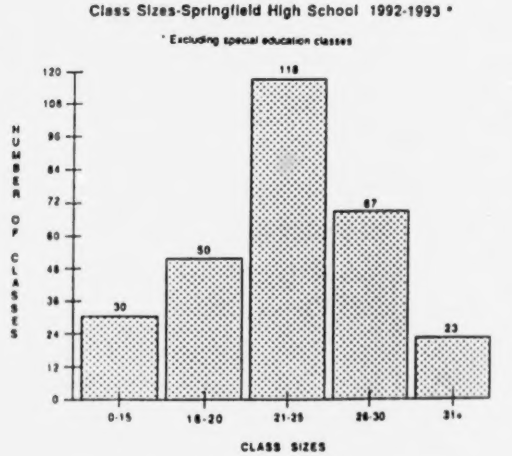
The value of a TQ project may sometimes lie not in revealing new facts or achieving process improvements, but simply in using TQ's graphic tools to communicate information. That was true for one of Springfield's projects.

Like many districts, Springfield often finds itself caught between the desires of senior citizens, 25 percent of its residents, who want tax increases kept to a minimum, and the demands of parents, whose concern for a quality education for their children necessitates increasing expenditures.

Senior citizens visiting the school often commented on what they perceived to be a large number of classes with relatively few students. Parents, on the other hand, frequently complained that classes were excessively large.

School personnel knew that the truth lay somewhere between, that average class size was 21-25. Yet in spite of numerous studies of class size done over the years and made available to the community, misperceptions persisted.

Now conversant with TQ tools, administrators hit on the idea of present ing their information to the Board of School Directors in graphic form through a histogram.



With the facts of the case before them in graphic form, the board got the picture. The current plan is to make TQ tools and charts a regular part of board presentations.

All 30 projects developed by those Springfield administrators who spearheaded the TQ effort were presented at the district's week-long administrative retreat in the summer of 1992. The administrators were enthusiastic about the practicality and value of applying TQM to the problems and challenges they confronted in their daily lives as educators.

Now the Springfield TQM process has expanded to include training of teachers, and a district-wide quality team has been created. It consists of teachers, central office administrators, and principals.

The relationship between Delaware County Community College and Springfield continues. The college has trained several Springfield teachers and continues to provide expertise and answers to questions as needed.

While a forthright embrace of TQM worked for Springfield, another of DCCC's supporting districts, Wallingford Swarthmore, took a different approach. Although Superintendent George Slick thought TQM could be useful, his district was already embarked on site-based management, and Dr. Slick felt that another initiative would be one too many for his staff.

He felt, however, that the principles and techniques of TQM could help implement site-based management. Both involve participatory management and decentralized decision-making and problem solving, which was just what the teachers and administrators would be involved in.

They could work more effectively with some training in essentials, such as conducting effective meetings and using problem-solving tools for data gathering and analysis.

Adopting TQM to the needs of this customer, DCCC extracted the teamwork aspects of TQM and the basic problem-solving tools and developed a customized program for district personnel.

Following the training, participants used TQ tools to analyze survey data collected from students, faculty, and other customers on their needs and concerns. They defined objectives and worked on developing priorities for their site-based management plans for the next year. The effectiveness of the process was enhanced by their increased awareness of team dynamics and the use of meeting management techniques they acquired through training.

Dr. Slick and his staff found the methods of TQM and the goals of SBM to be a good match, and were pleased with their results.

As these case studies demonstrate, TQM is flexible, having a variety of applications. Educators can adopt the whole system or some of the tools and techniques to realize other objectives. To ensure that whatever approach they take meets their particular needs, they might consider linking up with a training provider from the education community, one that speaks their language.

For Springfield, Wallingford Swarthmore, and Delaware County Community College, the partnership worked.

Dr. Place is superintendent of the Springfield, Penn., School District.

Tracy Kosman is coordinator of the Center for Quality and Productivity at the Delaware County Community College in Media, Pa.

Katherine Vitale is a TQM trainer and consultant for the Community College.

Blob Organization -- A Non-Hierarchical Scheme

by John Helfrich, *Superintendent,*
Kenmore-Tonawanda Union, N. Y., Free School District

In our quest for quality, we discovered that the traditional organizational patterns that have dominated schools forever were no longer appropriate if we were going to practice what we believed. We fostered shared decision processes and consensus methods of arriving at decisions in our building level planning teams. However, when one got to the central office level, the process was discarded and it was business as usual.

In essence, we had two parallel systems in use throughout the district. It did not bode well for the entire system as planning at the building level called for a great deal of autonomy and it just was not happening to the degree that we were totally supporting our most important elements -- the building level teams and their ability to make things happen at that level that would, in the end, become improved student outcomes.

We needed some radical reorganization of the decision tree and an increasing ability to make decisions and follow through at the building level. We began to work through the process and concluded that a radical change in the way that central office administrators operated was in order.

We transformed our central personnel from decision makers and givers of money to facilitators, supporters, cheerleaders, and keepers of the vision. We became instigators and motivators adept at urging building level persons to become risk takers.

We formerly doled out the budget dollars in line-item budget documents. This is now being done on a per-pupil basis. Initially the dollars were arrived at by using the average of the previous three years.

Staff development efforts are now the prerogative of each of our 13 buildings rather than being generated centrally, thus they take the flavor and reflect the priorities of each building. Employment of new personnel is also delegated to building teams who select individuals in whom they have an interest, invite them in for an interview, and then recommend the best for employment. They have acquired top-level persons in every instance, and everyone (including the central office personnel department) is very happy with the process.

Each building has authority to distribute dollar allocations among the various codes in their budgets. This gives them the ability to set priorities and provide funding necessary to implement them. The only thing that we require from the central office is that they achieve a high level of student performance.

The radical change in roles is reflected in the way our organizational chart is now constructed. It is flat, with various "blobs" interacting with each other on a peer basis. We all become supportive of the central and most important function of our district -- the teaching/learning process. Our chart looks like Diagram 1:

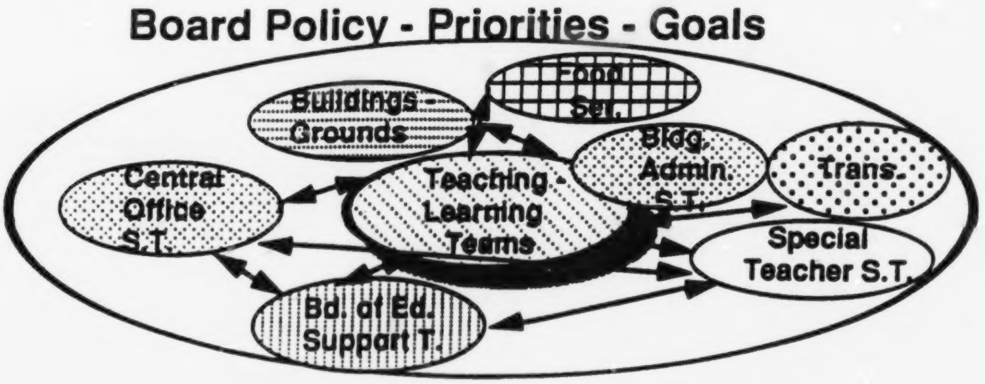


Diagram 1, Blob Organizational Chart

The largest "blob" represents the Board of Education policy, priorities, and goals. Of course state and federal regulations are inherent in this area.

The next blob is the teaching/learning teams that are central to everything we do and constitute our highest priority. Everything else supports that and interrelates with it.

Note that our Board of Education also is interacting, mainly because four of five Board members also serve as members of planning teams. They understand how the system works and support not only the process but also the substance of the deliberations.

Building administrators also find their roles changed as they serve as members of the planning teams in their buildings and use consensus to arrive at decisions. They are more powerful now than at any previous time as decisions are supported by all stakeholders. People are doing things that are important to them and their accountability in achieving results has increased manyfold.

Every other blob, such as buildings and grounds, food service, transportation, special teachers, and the central office, becomes supportive of the primary reason we are all here: the daily teaching/learning activities.

To date, the restructured organization works well. Schools are taking risks to a much greater degree than before and are working hard to improve student results.

Is there any confusion as to who is in charge? Not much, and those of us in the central office (who have been considerably reduced in numbers) find ourselves being used in a consultative role and called upon to support rather than make decisions.

Central office and building staff members are happy with these changes and things are moving along well, with the district receiving some important recognition on the local, state, and national levels.

We constantly monitor the process and have the ability to change when it is warranted. As a bottom line, the process has placed the responsibility for development and accountability where it belongs -- at the building level.

For more information, write Bill Keasling, Administrative Assistant to the Superintendent, 1500 Colvin Boulevard, Tonawanda, NY 14223.

Human Resource Development -- a Very High Priority

by John Helfrich, *Superintendent,*
Kenmore-Tonawanda Union, N. Y., Free School District

Kenmore-Town of Tonawanda Schools is fortunate to have a forward-looking teachers' union that supported a visceral restructuring of the teachers' salary schedule in such a way that it strongly encourages -- almost demands -- that everyone get involved in personal or professional development each year.

This approach came about as a result of a school improvement program that called for sharing decision making and decentralizing the decision-making process.

The involvement of our unions over the years helped build a lot of trust, thus a common improvement goal that the union and the district could buy into became the basis for the contractual change and the adoption of a philosophy that supports the continuous growth of our staff as the undergirding operational goal.

Our previous salary schedule was similar to those in most of the country -- courses taken at universities after the master's degree counted toward salary credit -- i.e., master's plus 15 hours, master's plus 30 hours, etc., would be the basis for salary increases that were cumulative.

Traditionally, one was paid for-ever for a course taken x number of years ago, one that might or might not be pertinent to that teacher's current assignment.

This made less and less sense to us as we were asking our staff to pick up more and more new skills and approaches to teaching and learning. These courses were not available at the colleges or universities, but were being made available through our staff development center within the district.

Clearly, a high value was placed on something not recognized in our salary structure and was not valued nearly as much as some university course work that was not as pertinent to our organizational goals.

Thus the way was cleared to consider seriously a new way to reward staff members for something important to our district.

Don Benker, our teachers' union president, and Ron Bongi, the first vice president, worked closely with the district negotiators, the superintendent and deputy superintendent. This group came up with a salary schedule that ended after the master's degree.

A column titled "career column" replaced the former columns related to college credits. The only way a teacher could get into the career column was to take between 15 and 20 career credits (hours) focused on high priority items at our staff development center.

Each teacher who completed the courses received $1500 at the end of the year. The money disappeared at the end of that year; an individual who wanted the money in the future had to take additional career credits the next year. The money was not cumulative. As a result, we built a powerful system of renewal into our salary structure.

This scheme did a couple of things. First, it became a powerful incentive for teachers (and later on, all staff members) to engage in personal and professional development each year. Secondly, it did not reward someone forever for a course that was pertinent when it was taken. Finally, this program could be pointed to as a truly professional approach for paying teachers in a new and rather creative way. It was strongly supported by the board of education and the public.

The same program was negotiated for our other two bargaining units, the administrators and the support staff. The pay for the support staff is a ratio of dollars equal to the ratio of their pay to that of teachers. The administrators receive the same as the teachers.

We will increase the amount of the career column in the next contract, but the dollars necessary to fuel this increase will come from the negotiated overall increase in salaries and not be in addition to that figure.

This program has been most successful and the results are evident in our classrooms. Teachers, support staff, and administrators are being introduced to cutting edge concepts, and as a result are becoming interested enough to prepare themselves to take on the instructional role in the staff development center. A number of staff members have become nationally known in several areas and consult throughout the nation. We value this type of leadership and encourage our people to go out and become experts so they can share with others.

The bottom line is that we have a virtual beehive of activity in our staff development center where almost every staff member is working diligently to become more competent and effective, to model behavior expected of our students, and to demonstrate the professionalism so necessary in our schools.

Training for Quality

By Gary George, Superintendent
Gardner-Edgerton-Antioch School District, Kan.

Soon after Xerox won the Malcolm Baldrige Award for quality in 1989, I was invited to a one-day quality training session. This was my district's first exposure to training in the elements of quality. A year or so later, my assistant superintendent and I attended a four-day Deming Seminar. These two events sparked our interest in quality and its applicability to education.

In 1991-92, the Learning Exchange in Kansas City set up the Inter-District Educational Alliance, a group of 14 school districts that wanted to learn about quality management. A former superintendent, Mike Slusher, was hired as the project director. Under his leadership, the Quality Alliance has done much to increase quality training for school districts in the area.

During the Alliance's first year, representatives of these districts participated in a 16-hour basic quality training program. Our personnel attended a two-day Deming Seminar; they also participated in a basic quality training session sponsored by AT&T and several other training opportunities.

We participated in team training and AT&T's benchmarking training during the second year of the Alliance. For some of our key people, these training sessions have been instrumental in our quality work. We have cascaded much of this training to other groups in our school district.

Working with the Sprint Corporation, we received training in Stephen Covey's Seven Habits. We later became licensed as facilitators for this program.

With this wealth of training and the experience of working on several quality projects, we set up a summer course for our teachers; a similar course was scheduled for the summer of 1993. The course includes a historical review of the quality movement, its focus on the customer, Deming's theory of profound knowledge, continuous improvement, team building, statistical process tools, story boards, etc. It also discusses Covey's seven habits. Our administrators, several teachers, some support personnel, and a member of the board of education have participated in this training. All teachers have heard shorter overviews.

This training is paying off. People are beginning to think systemically. More attention is being focused on the customers (parents and students). We see emphasis on continuous improvement as the culture for quality is gradually developing. Quality projects include topics such as bus referrals and the enrollment process. We used control charts to look at dropout rates and fishbone diagrams to examine the causes of dropouts. We now conduct exit interviews with students who drop out of school to gather more systemic data that will help us reduce the dropout rate. We are striving to reduce variation in student achievement by improving the achievement of our lower performing students. We now have Head Start and Chapter 1 pre-school programs.

We have added programs for at-risk students at each building. Our high school offers a homework lab two evenings each week.

Over time, we should see additional improvements. We are committed to keep working to improve the system. We have come a long way, but we know we have a long way to go. To paraphrase a quote from Xerox, "We are not the organization we once were, and not the organization we hope to become." Indeed, we will never be finished.

The Total Quality Learning and Support Program: One State's Approach to Continuous Improvement

By Patricia Abernethy and Richard Serfass

"Do you know what day this is in history?" the instructor asked a class of 45 attentive adults on March 10, 1992. "This is the anniversary of the day that Alexander Graham Bell made his first telephone call."

"It is my hope," he continued, "that in years to come, this day will have its place in history as the beginning of a unique partnership between education and business in forming a network for implementing total quality to improve education in New Jersey."

Thus began a unique state-wide pilot program called the Total Quality Learning and Support Program developed by the Educational Focus Group of Quality New Jersey.

Six local school districts (Asbury Park, Burlington City, Cherry Hill, Hamilton Township, Manville, and New Brunswick), Brookdale Community College, and the Urban Division of the Department of Education were chosen because of their interest in learning about total quality and their representation from urban, suburban, and rural districts across the state.

Each local five-member team included the superintendent, business administrator, district curriculum supervisor, building principal, and teacher (or comparable positions from the college or department of education).

The foundation for this program came from the mission of Quality New Jersey (QNJ) founded in 1988 "to encourage the application of total quality management philosophies and methods in New Jersey through a team effort focusing on the continual improvement of industry, service, health care, education, government, environment, and quality of life in New Jersey."

The Education Focus Group, one of the seven focus groups in Quality New Jersey, currently has 60 members from public education, higher education, and businesses. The goals of the Education Focus Group are to:

1. Gather information on the application of TQ principles in educational settings.
2. Disseminate information about TQ resources to all potential educational users.
3. Develop and provide training opportunities.
4. Serve as a clearinghouse for technical support.
5. Recognize and share best practices that can be replicated.
6. Recognize successful New Jersey practices.

Since the spring of 1991, a core planning team has developed a program to provide training for the educational leadership teams (Goal 3). Business sponsorship was obtained from AT&T and Bellcore initially. Public Service Electric and Gas and Xerox joined the effort within its first six months.

All training events are held at the business sites with the costs of instructors, meals, and facilities borne by these business sponsors.

Each team chosen for this pilot program made a two-year commitment to attend the training and learning events; learn about the principles, practices, and tools involved in total quality improvement; and work with quality facilitators from businesses each month to identify local improvement opportunities and apply process management improvement and problem-solving strategies.

The training and learning events have been structured around the principles of total quality management, process quality management improvement, problem-solving techniques, quality tools, and team building.

Four learning events have been scheduled for each year of the program. The quality trainers from AT&T and Bellcore are the instructors. Consultants are invited to share programs they have developed and implemented in educational settings based on total quality principles.

During the learning events, local leadership teams are given opportunities to apply the instructional information to their own settings. Experience with simulations and videos, sharing the improvement opportunities of other educational leadership teams, and networking are all important aspects of the training and learning program.

Three major features incorporated into the program are designed to sustain it over time. These are:

1. *Collaboration of leaders in business and education to develop the curriculum of the program.*

Instructors are from the business sector, so much planning is needed to adapt and "fit" the teaching to education and schools. Rich Serfass of Cherry Hill Public Schools, Maury James of the Department of Education, and Patti Abernethy of Burlington City Public Schools have collaborated with Til Dallavalle of Bellcore and Jeff Hooper and Janet Shappard of AT&T to design the events to fit education and the needs of the leadership teams.

2. *Ongoing support for quality improvement.*

The concept of on-site facilitators was developed to provide resources and support for the leadership team in implementing information from the training sessions and applying new concepts and tools.

The quality facilitators are employees from AT&T, Bellcore, Xerox, and PSE&G who have volunteered to work with the districts at least six hours a month. Their companies give release time for these employees as their commitment to help improve education in New Jersey through the application of Total Quality.

3. *Building capacity for the local quality team.*

The opportunity to learn over the first two years and to be supported monthly by quality facilitators will provide a good basic instruction in total quality for the leadership teams and other local quality teams in education.

However, the program itself is designed to ensure that one or two persons from quality teams in the program itself will be trained to become local quality facilitators through inclusion in the extensive total quality training offered by the businesses and in the formal Plan for Continuous Improvement of Education in New Jersey. This Plan will provide opportunities for every school and district to be included in training.

The enthusiasm of the educators is reflected in comments such as: "So that's how we determine what we need to know to begin process improvement!" "Now I see the areas of focus that will reap the most benefits!" "How do we teach everybody what we're learning?" "It will help me determine just what data are needed before we come to any decisions." "This will help us have more of a process improvement orientation rather than a project orientation!"

The learning and training events for this pilot program will continue through June 1994. We plan to expand the program to more districts during 1993-94 and 1994-95. The initial total quality leadership teams will serve as resources for the next group of teams. There is much interest in becoming a part of this program as the excitement of the initial teams is shared in the home region and in professional circles.

Some leadership team members are making presentations at superintendents' roundtables, at principals' and supervisors' associations meetings, and at school board conventions to fulfill another goal of the Educational Focus Group -- to disseminate information about total quality.

Funding sources are currently being sought to expand this program throughout the state. Greater involvement of businesses will be essential since more quality facilitators are needed until each local quality leadership team can be supported by its own local quality facilitator. The local quality teams are excited and are being sustained well by the facilitators.

The improvement opportunities are diverse and clearly focused (attendance issues, discipline issues, communications with the community, scheduling concerns, etc.). Together we are all on that road of continuous improvement but we now have stronger quality tools and techniques.

Dr. Abernethy is superintendent in Burlington, N. J.; Dr. Serfass is Assistant Superintendent in Cherry Hill, N. J.

Tardies and Absences Targeted by New Jersey School Improvement Team

Reducing tardiness and improving attendance were problems the staff of Burlington City High School in New Jersey chose to tackle more than a year ago.

As the school's Quality Improvement Team collected data on the number of students marked tardy and absent, it found significant errors in the school's data collection method. Some students were marked absent because they were late and missed homeroom, yet they attended classes all day.

The team then tried to determine the root causes for nonattendance. After a brainstorming session, participants created a fishbone diagram. The fish's head (problem) was why students were absent or late for school. The team grouped ideas from its brainstorming list into four categories: outside influences, staff, student, and system. To keep from identifying symptoms instead of root causes, team members kept asking, "Why?" whenever a cause was given.

They summarized the root causes as:

- students are not challenged by the curriculum and the way it is implemented;
- parents lack proper education and motivation;
- teachers don't understand students and their needs; and
- the data system is not aligned with policies and procedures.

The Quality Improvement Team's recommended action plan was approved by the Board of Education for implementation during the current school year. The plan included these actions:

- Institute a staff development program.
- Start a parent-to-parent program in all schools.
- Set up a new computerized system for attendance data.
- Rewrite the math and reading curricula to align with standardized tests and the SCANS report.
- Establish an ad hoc attendance committee.

AT&T, Bellcore, Johnson and Johnson, Public Service Electric & Gas, and Xerox are training six New Jersey school districts, a community college, and the urban division of the New Jersey Department of Education in quality principles, practices, and tools.

For information on the statewide pilot program called the Total Quality Learning and Support Program, write:

Dr. Richard Serfass
Assistant Superintendent
Cherry Hill Public Schools
Browning Lane
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or
Dr. Patricia Abernethy
Superintendent of Schools
City of Burlington Public Schools
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Burlington, NJ 08016 ▲

From Quality Network News, *March-April 1993*

What Do Grades Mean?

By Mike and Jerry Stoecklein

Bobby (not his real name) is a third grader. He likes school well enough. His favorite things about school are lunch, recess, science, and reading (especially adventure stories).

Unfortunately, Bobby doesn't like many things about school: check marks (demerit system), grades, and social studies.

Bobby is not alone. His friends would enjoy school more and would learn more if barriers did not detract from their joy in learning. Bobby and his classmates worry about many things that hamper the reasons they should be in school -- to learn and to have fun.

Bobby is learning one thing: you cannot learn and have fun at the same time. He thinks that he and his friends must sit in straight rows and speak only when told to. "Fun" is reserved for recess. What Bobby is learning is that recess = fun, learning = hard work (boring).

Why doesn't Bobby like social studies? "It's boring," he says. "I don't know why we need to know it." Social studies doesn't interest him and he doesn't understand why he needs to learn it. What's the point? He'd rather read one of his favorite books, like *The Adventures of Huckleberry Finn*.

Bobby also is learning that the current process is filled with fear. He has learned that threats of poor grades are used at school as an incentive. He has learned to fear the results of tests and the associated letter grades. He has learned to be afraid of report card day.

The Effects of Grading

Last week Bobby got a check mark for not finishing an assignment. The teacher didn't take into account some possible variables: Bobby may have been in a bad mood; perhaps there wasn't adequate time to finish the assignment. Possibly there were conflicting time demands at home -- or family problems, or distractions. Maybe the school bus was late, causing stress for all students on board. Perhaps Bobby didn't understand why he was doing the assignment; maybe the teacher's instructions were not clear.

Bobby isn't searching for excuses, and he did not purposely give his teacher an incomplete paper, but he got a check mark just the same.

When Bobby gets a check mark, he feels embarrassed, humiliated, frustrated, and angry. Sometimes he'd like to cry. He feels this way because he's trying to do his best, yet the "system" won't let him. "I feel my face getting red," he says. "I feel like everyone is looking at me. I feel like I'm going to cry, but I hold it back!" All of Bobby's friends hate check marks, too. They fear getting them. School shouldn't encourage fear.

Can you blame Bobby's teacher? She's doing her job. She is only doing her best. She has rules to uphold. No assignment = one check mark. Those are the rules.

At one time, someone thought the check mark system was a good idea. "It will teach them discipline. We need to maintain control." Is that what we're really doing? Or are we making matters worse?

Grades can destroy a student in the same way that a check mark can. Once Bobby brought home a science test with a grade of F. He was devastated. He used to like science. His dad asked him about the F. Bobby didn't want to talk about it. He felt that he had done something wrong. All the feelings associated with getting a check mark were in play here too.

After a while, Bobby told his dad a little more. The teacher says that anyone with a score of 69 or lower gets an F, explained Bobby. His dad asked, "Why 69? Why not 79? Or 59?" Bobby didn't know. Does his teacher even know? Maybe that's the rule.

Bobby's dad kept at it. "Tell me how you learn science. Do you do any of the experiments in the book?" "No," Bobby responded. "We just read and take tests. Then we get a grade. We pretend like the experiments in the book aren't there." How can Bobby understand and enjoy science (or any subject) if he doesn't get "hands-on" experience? Doing experiments could be fun, and the students would learn. But we wouldn't dare let the students have fun while they are learning! Remember -- fun is reserved for recess.

Bobby's dad learned one more thing. The school does have some science equipment, but the eighth graders have it. It isn't available for other grades. That's one barrier that the school administration could remove to create joy in learning.

The type of experiment that Bobby's dad is talking about takes only time and a few cheap materials -- in this situation, water, ice, salt, and food coloring. Bobby and his dad did the experiment at home that night. They also did some other experiments in the book. It may or may not have made a difference in Bobby's next test grade. Bobby was starting to learn and have fun. Science began to make sense. Bobby wanted to learn more.

Bobby and his friends have a right to joy in learning. They should be allowed to explore all their natural curiosities about anything they want to learn about. They should know that learning is fun. Grades should not be a concern.

Bobby also could know why it would be good to learn about social studies -- not to memorize the state capitals, but to learn why Minneapolis is located where it is. Why did people settle there? What were their lives like? What can we learn about it? What could we apply to our lives?

Bobby might learn that Minneapolis is an important city for navigation. What other questions might the study of navigation lead to?

How might this relate to an activity that Bobby enjoys (such as reading *The Adventures of Huckleberry Finn*)? What do the two have in common? What other subjects might this lead to? Economics? Civil rights? History? It just might be possible to have fun and learn at the same time.

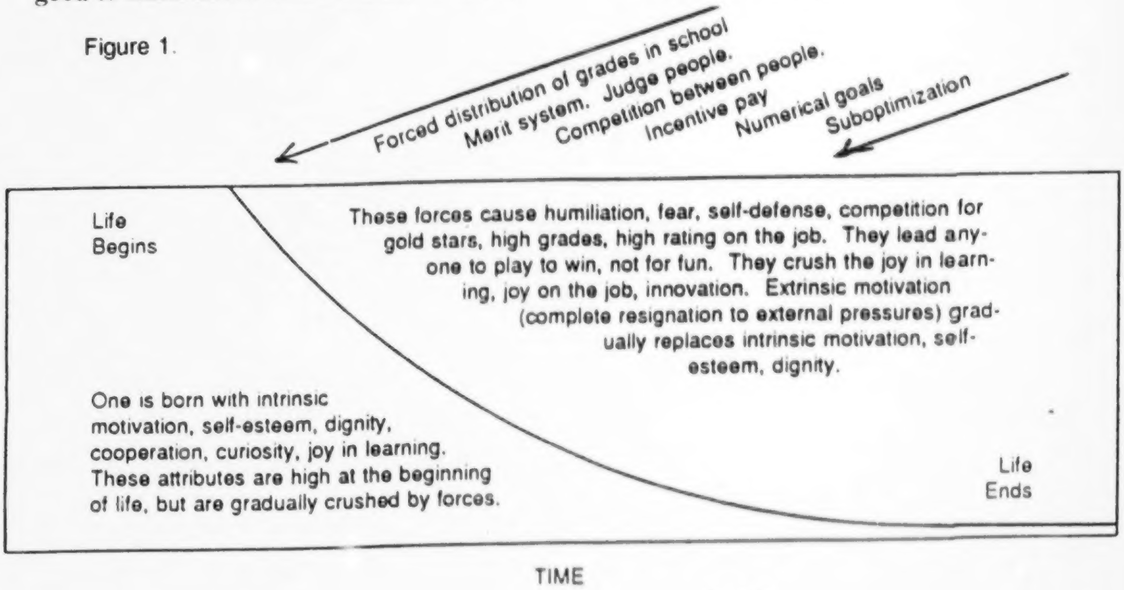
Bobby was getting his head filled with information. Information isn't the same as knowledge. Giving students information and asking them to repeat it back is like rolling marbles. The teacher rolls the marbles out, and Bobby rolls them back. If he gets it right, a high grade is his reward. If he doesn't, a poor grade follows.

A poor grade is a label for failure. It presumes to predict the future. Bobby may be labeled as a failure. How does that make him feel? Does it make him want to learn more?

Forces of Destruction

There is a better way. We are learning about the devastating effects of grading from many great thinkers. One is Dr. W. Edwards Deming.

Figure 1.


Forced distribution of grades in school
Merit system. Judge people.
Competition between people.
Incentive pay
Numerical goals
Suboptimization
Life Begins
Life Ends
TIME

These forces cause humiliation, fear, self-defense, competition for gold stars, high grades, high rating on the job. They lead anyone to play to win, not for fun. They crush the joy in learning, joy on the job, innovation. Extrinsic motivation (complete resignation to external pressures) gradually replaces intrinsic motivation, self-esteem, dignity.

One is born with intrinsic motivation, self-esteem, dignity, cooperation, curiosity, joy in learning. These attributes are high at the beginning of life, but are gradually crushed by forces.

Dr. Deming helped educate Japanese leadership about a system of improvement that helped that country make a dramatic industrial turnaround and subsequently dominate world markets. Now some companies around the world are starting to listen to Dr. Deming. Schools are among those beginning to seek his guidance and help.

Dr. Deming describes the destructive forces that squash the intrinsic motivation from individuals. It starts early in life, and much of it happens in schools. Figure 1 shows what happens to the natural inquisitive nature of children as they grow up. Extrinsic motivation takes over. The power of the individual is lost.[1]

These destructive forces extend beyond the school walls. Bobby knows this is true. He told his dad that he learned during recess that one of his friends gets $5 for every A on his report card. Another boy gets more. One boy gets grounded if he gets a low grade.

Bobby told his friends that his dad doesn't care about grades. "He just asks me what I'm learning," Bobby said, "and he asks if I am having fun. He asks me that every day." Bobby's friends thought this was terrible. They told Bobby that his parents must not love him.

Children have feelings. They also are quick learners. The destructive forces take their toll.

One way to learn more about the fundamental flaw with grading is to think of a demonstration that Dr. Deming conducts at his four-day seminars. It's the demonstration of the red beads.

Volunteers are called from the audience and asked to become "willing workers" in a bead factory. The foreman (Dr. Deming) tells them that they can continue to work in the factory as long as they perform well. It's entirely up to them.

One by one, the workers dip a paddle into a bin with red and white beads. The factory's customer wants white beads, not red ones.

The paddle has 50 slots for 50 beads. At the first try, the paddle comes up with 42 white beads and 8 red beads. This is **supposed** to be a white bead factory. Why are the workers producing red beads?

The foreman tries quotas, punishment, merit pay, and ranking of workers from highest to lowest number of defects (red beads). Nothing seems to work.

At the end of 24 dips by the six workers, the foreman is frustrated. These people obviously don't care whether the factory stays in business or not. Their performance is getting worse. He has the production figures to prove it.

In one last effort, the foreman decides to keep the three best workers and let the others go. A brilliant solution! Skim off the best workers -- no need to continue to employ the "dead wood." But the final six dips are even worse!

Finally, the factory closes. Everyone loses.

Bobby's Bead Factory

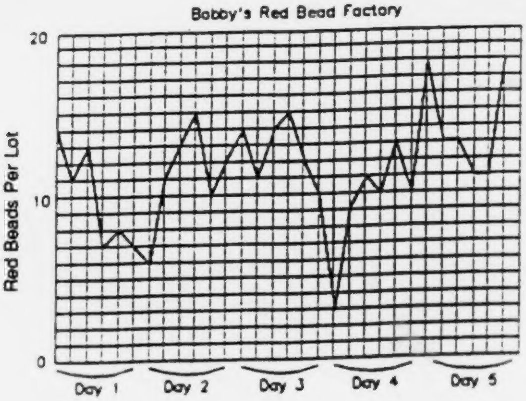
Worker	Day 1	Day 2	Day 3	Day 4	Total	Day 5
Mike	14	6	14	3	37	18/11
Matt	11	11	11	9	42	13/11
Gerald	13	13	14	11	51	
Bobby	7	15	15	10	47	
Mark	8	10	12	13	43	
Andy	7	12	10	10	39	13/18
Total	*60*	*67*	*76*	*56*	*259*	*84*
Running Average	*10.0*	*10.6*	*11.3*	*10.8*		

Bobby and his dad are interested in learning more about this and how it relates to grading in schools. They make their own bead factory and try it themselves. Bobby recruits five friends from school to be willing workers. The results are shown on the chart in Figure 2.

They learned that the results of this process were due to the system, not the workers' efforts. All the foreman's efforts to get the workers to improve their outcome were futile and destructive.

Bobby, Gerald, and Mark were judged to be the worst of the bunch and were let go. How did they feel? Bobby and his dad created a simple control chart to show the bead production in time sequence order (Figure 3).

Figure 3.



Bobby and his dad learned that the variation appears to be stable. There's nothing to say that one worker was any better than the others. Keeping the "best three" workers was no guarantee that they would continue to produce good figures.

It was unfair to scold the workers who produced high numbers of red beads. It wasn't their fault. The system produced the variation. It wasn't the foreman's fault. He was only doing his job. That's how he was trained. He was only doing his best, earning his salary.

From the figures, Bobby and his dad rearranged the figures into another type of graph -- a histogram. It shows how the bead production is distributed. Here's what they got:

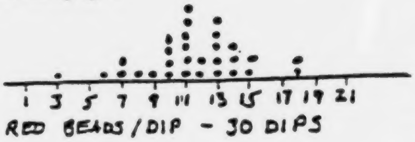
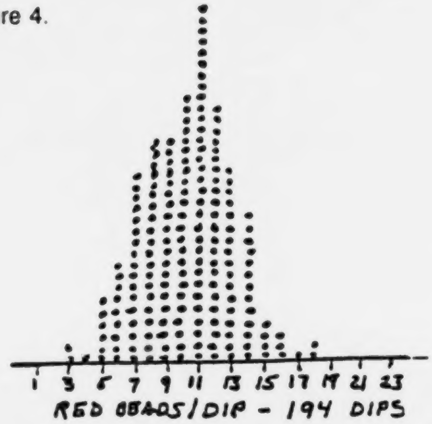


Figure 4.



If Bobby and his dad continued to dip the paddle and produce more figures, the average would settle down to some number. They wanted to learn more, so they proceeded with seven more repetitions of the bead factory. The histogram for all eight demonstrations of the factory is shown above.

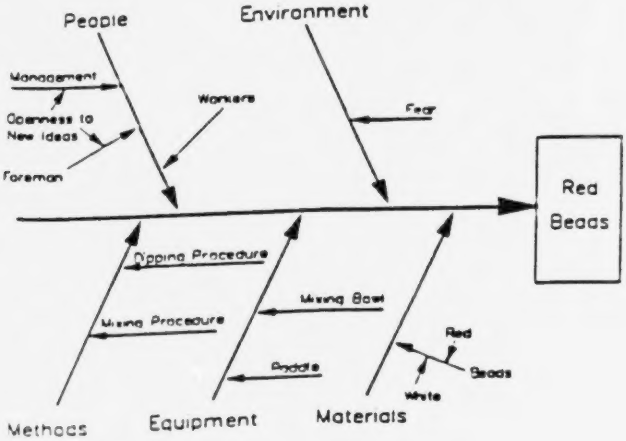
What variables contributed to the outcome of red or white beads? Bobby and his dad thought about these and displayed them with a cause-and-effect diagram. This diagram (Figure 5, next page) shows all the potential variables that might influence the result -- in this case, the number of red beads produced.

Bobby and his dad asked themselves what components of the process influenced the outcome. Best efforts and hard work by the workers could not improve the outcome. Ranking of workers and exhortations only resulted in humiliation, fear, and embarrassment.

Without fundamental changes to the system that produced the beads, the output would continue to be similar to that shown in the control chart and the histogram.

The workers could not control these variables. Only the management of the factory could do this.

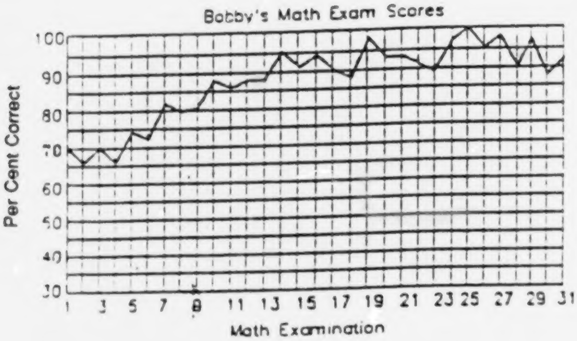
Figure 5.


People
Environment
Management
Openness to New Ideas
Foreman
Workers
Fear
Red Beads
Dipping Procedure
Mixing Procedure
Mixing Bowl
Paddle
Red
Beads
White
Methods
Equipment
Materials

What might this tell us about grading in schools? Is there a relationship to the bead factory?

To learn more, Bobby and his dad plotted Bobby's test scores (not letter grades) for math on a control chart. Here is what it looked like:

Figure 6.

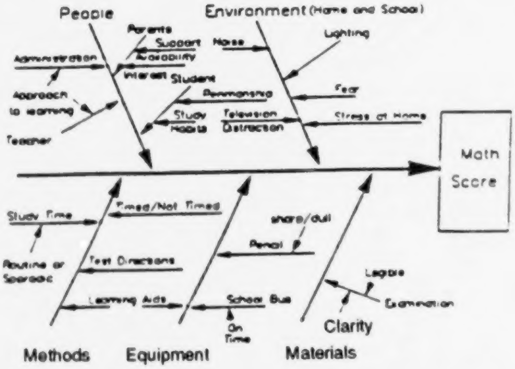


Bobby's examinations tested his understanding of multiplication. Bobby was learning his "times tables" early on. At week three, Bobby's dad purchased a simple computer program that he thought might help with learning. His dad knew that Bobby liked to play computer games.

They worked on the math program together every night. After some work and study, Bobby's scores appeared to be stable.

The stable variation (in the last 19 scores) looked like the variation in the bead factory. The variation appeared to be due to the system. If the bead factory had "up-stream" variables that produced output, what would the variables be for learning mathematics? Bobby and his dad thought of some:

Figure 7.


People
Environment (Home and School)
Parents
Support
Availability
Interest
Administration
Approach to learning
Teacher
Student
Penmanship
Study Habits
Noise
Lighting
Fear
Television Distraction
Stress at Home
Math Score
Timed/Not Timed
Study Time
Routine or Sporadic
Test Directions
Learning Aids
sharp/dull
Pencil
School Bus
On Time
Legible
Examination
Clarity
Methods
Equipment
Materials

Many variables could have affected the outcome. Bobby could have controlled some (effort, inclination to study, penmanship). His mother and dad might have controlled others (limited distractions at home, some tools to aid study, availability for questions). Still others might have been within the control of the teacher (clarity of questions, distractions at school, classroom environment, attitude toward learning).

If it was cruel for the bead foreman to chastise a worker for a poor performance with the paddle, it also was cruel for anyone to judge a student and assign a grade when it is the *system* that produces the outcome. If the system is stable, it would be pointless to ask Bobby why he got an 87 on one exam and a 98 on another. It would be even worse to attach a letter grade to him.

Grades form a label. We think we are making a prediction about future success or failure. A student with an A may feel proud and be expected to do the same in the future. A student with a C or worse is labeled for future failure. "We can't expect much better from that student -- he's only average."

Dr. Deming relates a story that comes from Heero Hacquebord,[2] a friend and colleague who had a six-year-old daughter. One day she came home with a note explaining that she scored below average on both of the examinations given thus far. This was a warning to the parents.

Other notes about other children told a different story. Some described above-average performance on both tests. "Congratulations! We predict a genius in the making."

Some students got notes that warned of a drop from above average on the first test to below average on the second. Still other parents got notes congratulating the students on improving from below average on the first test to above average on the second.

Dr. Deming explains that some knowledge of variation would show that all of this means nothing.

Look at the averages for both exams shown in Figure 8. In a class of 32 students, about 8 will score average on test 1 and test 2. Roughly 8 will score below average on test 1 and test 2. Roughly 8 will score above average on test 1 and below average on test 2. Roughly 8 will be below on test 1 and above on test 2. Nothing can be done about this. We cannot repeal the laws of variation.

What happened to the little Hacquebord girl? How did she feel? She was devastated! Fortunately, she received some help and support and she recovered. But other students were not so lucky.

Can we blame the teacher? No, she was doing what she thought best. Her intention was to do what's best for the students in her class. Perhaps she should study variation to guide her best intentions. If grades are meaningless, what does a report card mean? Not much.

Bobby came home with a note one day. It said, "Last report card not returned. It must be returned before next card is sent home." Where was the last report card? No one knew.

It had been eight weeks since the last report card came home. What should Bobby do? What should the teacher do? Maybe this would mean a check mark for Bobby. Maybe the teacher should have given the parents an F. Bobby's dad had an idea. If last quarter's card is required, he said, they could make one.

Bobby and his dad made a report card. First they listed his subjects. Next they came up with grades for the last two quarters. Memory of actual grades was unnecessary. If the grades reflect variation due to the system, Bobby and his

Figure 8.

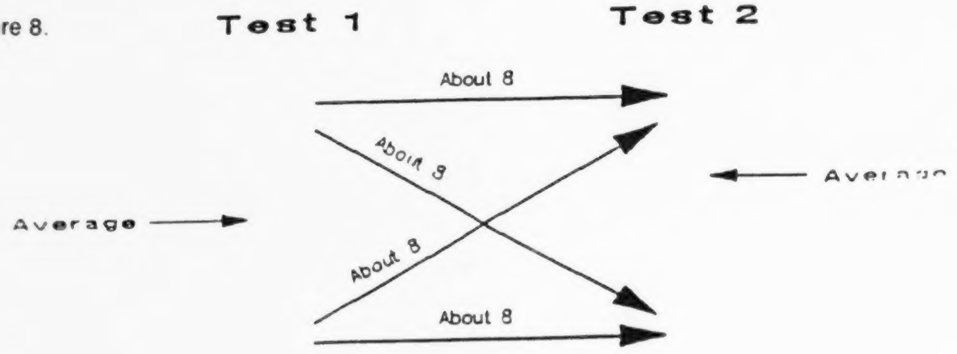


Figure 9.

Subject	First quarter	Second quarter	Third quarter	Fourth quarter
Mathematics	D	D		
Social studies	D	B		
Religion	C	F		
Reading	C	B		
Spelling	C	D		
English	A	D		
Music	C	D		
Physical education	C	C		
Science	B	C		

dad could fill in boxes at random, an A here, a B there. They added a C here and there.

They used a process that generated grades close to a random manner. They borrowed five dice from a board game and established a scoring system. The totals of each roll of the dice generated a score (something like counting beads).

If the total was between 5 and 9, that earned an A. A total of 10 to 14 got a B, 15 to 19 got a C, 20 to 24 a D, and 25 to 30 an F.

The report card they made up is shown above in Figure 9.

If the teacher needs a piece of paper, she has one now. Bobby and his dad have some knowledge of the system that produced these grades. They know why these grades really don't mean anything.

What can we say about the system that produces the grades at school? Much of the variation is due to forces outside of the students' control. The grades certainly don't tell a story about what is being learned. They may be making matters worse. Grading may indeed be a destructive force.

Learning without Grading

We are not chained to the current system. If we can learn about the effects it is having on our students, we can change it. What might school be like if we pursued this new direction?

In such a school, neither Bobby nor his friends would worry about grades. Teachers wouldn't prod students to do better by threatening humiliation or poor grades for low test scores. Check mark systems would not be needed. Bobby and his friends would like this. Everyone would work together to learn.

"Misbehaving" would be unacceptable because it would be a barrier for all to learn. Students and teachers would all understand this. Threats of check marks would be unnecessary.

Bobby and his friends could study the things that interested them. Assignments and deadlines (if needed) would make sense to students and teachers because they would be working on learning as a process together.

Bobby's mother and dad, other parents, Bobby's teachers, other teachers, Bobby, his friends, all the students and administrators could work toward a common aim: to learn and to have fun.

Bobby and his classmates could explore other ways of learning, and they would combine fun with learning. School would be fun and interesting. Learning would occur inside and outside the classroom. Bobby and his friends would cooperate with each other and with teachers and parents in all that they do.

Competition would disappear, even individual competition in games. Students would learn that the reason for games is for exercise, learning, and fun, not to accumulate awards or to win at someone else's expense. Everyone would win.

Bobby and his friends could track their own progress in learning. With time and patience, they would learn to plot simple charts to see their progress or know when they were stuck. Each would know when to ask for help and would not be embarrassed for doing so. Questions would be welcomed.

Bobby could decide what *he* would like to learn, and how he would know when he attained a stable level for a skill. He would make connections about what interested him, what was fun, and what he would like to learn more about. He would learn to use the library to learn more. He would seek help in encyclopedias, atlases, and dictionaries. He would go to museums because he wanted to learn more, not because it was an assignment. He would see connections between things that were fun for him. His friends would do the same. They would learn that people learn things in different ways.

Bobby's teacher could win from this approach. She could help the children learn to plot their own progress and find answers to their questions. The students and the teacher could look at student test output as a system. From one test or a group of them, they could look at their output in the form of a histogram:

The tests themselves may not even require students' names on them. At a glance, the teacher and students could tell how they have progressed since the last time. They might know who among them needed special help or deserved additional study toward the "good" side, not for punishment or reward, but for learning, to help everyone learn and to search for other ways to learn, realizing that people (including children) learn in different ways.

The teacher and students would know that ranking (grading) those who are part of the system would mean nothing. To do so would cause some to be winners and others to be losers. That would mean everyone loses.

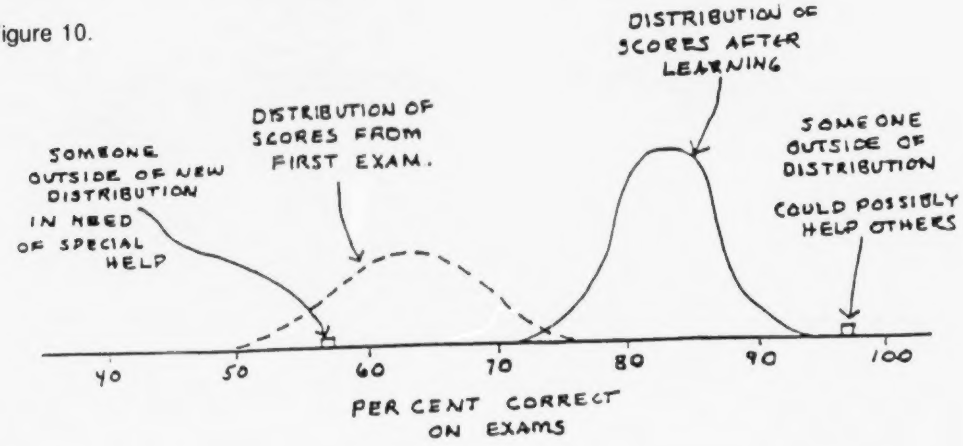
Education as a System

Bobby, his friends, and his teacher could learn together. But how could they begin? It would be hard for people to understand that grading is destructive and unnecessary. Many would fear the change.

One way to begin would be for everyone to view education as a system. Dr. Deming describes a system as "interdependent components working toward a common aim." There must be a common aim, and the components must work together so all parts of the system will win.

What could be the aim of education? One answer might be to learn and to have

Figure 10.



fun. That could be sufficient.

What might an education system look like if we had a picture of it? Dr. Harold Haller, a friend and colleague of Dr. Deming's, presented a picture of what such a system might look like at one of Dr. Deming's seminars.[3] It looks like Figure 11.

This picture is different than the one we all know. It will take time to see how all parts can work together.

A similar picture would have to be made for Bobby's school, and everybody involved would understand this new picture.

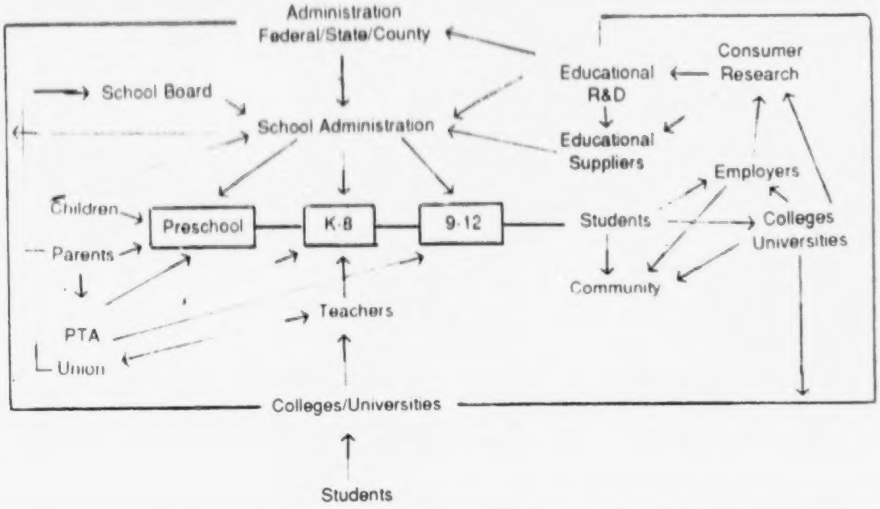
Do we have to make the effort to try? What choice do we have? If we do nothing, we perpetuate the destructive forces. We also continue to fill our children's heads with information. We cannot afford that. We must try to produce a better future.

All parts of the system must seek the type of knowledge for improvement that Dr. Deming speaks of. Continuous study of the following would have to be pursued:

appreciation of a system,
knowledge of variation,
theory of knowledge, and
psychology.

Gerald (Jerry) Stoecklein is a fourth grader at St. Rita's School in Racine, Wisc. His father, Mike, is a board member at that school, an internal consultant for All Saints Healthcare System, and president of the Southeast Wisconsin Quality Improvement Network and Deming Study Group.

Figure 11. Public Education Viewed as a System


Administration
Federal/State/County
School Board
School Administration
Educational R&D
Consumer Research
Educational Suppliers
Employers
Children
Parents
Preschool
K-8
9-12
Students
Colleges Universities
Community
Teachers
PTA
Union
Colleges/Universities
Students

References

1. Adopted from Dr. Deming's Four-Day Seminar, "The New Economics for Industry, Education, and Government," February 2-5, 1993. Reprinted with permission from Dr. Deming.

2. "A Day with Dr. Deming," teleconference from George Washington University, November 1992. Reprinted with permission from Mr. Hacquebord and Dr. Deming.

3. "The New Economics for Industry, Education, and Government," February 2-5, 1993. Reprinted with Dr. Deming's permission.

Portsmouth Public Schools Productivity Initiative

By Claude C. Parent and Marion Ransom

The Portsmouth Public Schools' continuous improvement effort began with an Effective Schools initiative introduced by Richard Trumble, the new superintendent of schools, in June 1990.

When he became superintendent, the school system had been through a series of leadership changes. Portsmouth schools were perceived by many as one of the least effective school divisions in the Hampton Roads area. The district faced many long-standing educational, financial, and political problems.

During a summit meeting to explore the city's future, civic leaders identified the schools as the number one priority in planning for the city's future growth and development.

Portsmouth Public Schools is an urban school district. More than 55 percent of its students are economically disadvantaged. The district also faces problems of discipline, drugs, and violence. To improve its standing in the community, a new vision for improvement became a matter of survival.

The superintendent's vision involved not only the schools but also the whole community. He laid out a bold plan to transform this urban district. He challenged the staff and parents to be responsible for all areas of a child's education.

The district was to be goal-focused and data-driven, he said. He called for new programs and continuous improvement of all products and services. Power would be shifted from central office bureaucracy to building administrators. Principals and staff would have authority and be accountable for producing student gains. Evaluations would reflect this shift, and an executive development program would be created to train personnel in the new management philosophy.

This long-range strategic plan called for establishing magnet schools of choice and an emphasis on student achievement gains. The superintendent garnered board and community support and worked closely with the city to help it develop its own productivity initiative.

Within the first year of the program, Portsmouth Public Schools was awarded one of six grants from the Commitment to Quality initiative of the Virginia Department of Education.

The Effective Schools planning process laid the foundation for school improvement. Training in participatory management and quality principles was provided for key staff members from all 29 schools. This group included principals, assistant principals, school chairpersons, department heads, and teachers from four start-up schools selected for initial training in quality management. Parents serving on school improvement teams also were trained. Together, the participants established comprehensive school improvement plans linked to the total district plan for improved academic achievement for all students.

An important feature of the school improvement plans is that they are not "central office directed." School principals are being empowered and challenged to know their customers and to identify problems and solutions. Each school improvement plan is unique, based upon the school's own needs.

Superintendent Trumble, City Manager V. Wayne Orton, Portsmouth Mayor Gloria O. Webb, and School Board Chairman J. Thomas Benn (who is Quality Assurance Director for the Norfolk Naval Shipyard) modeled top management's commitment to continuous improvement by participating in quality seminars and supporting the quality initiatives in the district. Area businesses, including the

Norfolk Naval Shipyard, Tidewater Community College, and the Hampton Roads Quality Management Council, are providing ongoing support in training the action teams. On October 15, 1992, the School Board passed a resolution supporting the tenets of total quality management.

Superintendent Trumble has established a dialogue with all internal groups, including all levels of employees; this allows them to speak informally about their concerns. The superintendent has pushed for capital funds to improve the schools' deteriorating physical condition.

He also has been a key player in creating coalitions from state and local resources to garner support for quality. Dr. Trumble and members of his cabinet helped organize activities promoting quality in education; these included a field trip for selected Hampton Roads classroom teachers to visit business partnerships involved with quality and a state-wide teleconference on total quality leadership featuring a California superintendent who has successfully implemented quality throughout that system.

The management team has provided resources to support the school improvement efforts. A member of the superintendent's management team represents the district on the Hampton Roads Quality Management Council and the Quality Education Focus Committee.

School improvement teams were organized in all 29 schools in the fall of 1990. The central focus for employee involvement has been the school improvement teams. Each consists of the principal, teachers, classified personnel, parents, and community leaders. Parents represent between one-third and one-half of the membership on these teams.

Team members help management write guidelines for involving employees in the school improvement process. Financial support for training employees in the principles of continuous improvement has come from three major federal grants totaling $250,000. Early release days and substitutes are provided through the local budget to train teachers in the start-up schools.

More than 200 school personnel, including central office staff members, principals, assistant principals, school improvement chairpersons (classroom teachers), teachers in the four start-up schools, and the Department of Operations, have been trained in quality principles. A plan developed by the steering committee outlines continued training of all personnel for the next three years.

Personnel also attended other quality training seminars conducted by Xerox, Effective Schools, Deming, and Conway. The problem-solving process, team building skills, and the quality improvement process are components of the training curriculum provided by all of these organizations.

Superintendent Trumble meets with his management team, composed of department directors and representatives from the principals, to assess progress toward meeting the overall goals of the system.

Monthly meetings are scheduled with employee groups (teachers, paraprofessionals, clerical personnel, cafeteria workers, custodial personnel, bus drivers, and maintenance workers) to provide opportunities to identify problems and share ideas for solutions.

Quality action teams composed of front-line workers are empowered to solve organizational and instructional problems to improve the services and products we provide for internal and external customers.

At an administrative retreat, individual school plans were presented to the Superintendent, Chairman of the Portsmouth School Board, and Virginia's Secretary of Education. School improvement teams continued to share, discuss, monitor, and analyze school improvement plans through monthly presentations to the superintendent's cabinet and school board. This provides district-wide monitoring of the programs of the school improvement teams as it gives members recognition and feedback.

At the end of the school year, schools determine the extent to which they met their school improvement objectives. All 29 schools showed improvement during 1991-1992. Schools that met all their improvement objectives were recognized and awarded plaques at the opening-of-the-year convocation. In 1992-93, seven of the schools met all their school improvement objectives. One of these seven was a special education center.

The continuous improvement process calls for a collaborative school-based approach that empowers employees to identify problems and implement strategies to solve them. These strategies help ensure customer satisfaction. Quality efforts have been integrated with the regular mission statement of the school board. The primary objective is to provide the tools that will enable students to achieve their highest destinies.

During the fall of 1992, the school district developed an extensive continuous improvement plan that encompasses more than 20 key areas. As part of this plan, committees developed three-year vision plans, a one-year action plan, and a master calendar of activities. In developing the continuous improvement plans, work in individual committees is being tracked so that the district can see its progress toward overall goals.

This overall continuous improvement plan encompasses all areas in the school district to focus on a clearer picture of the entire system. To do this, all committees must be aware of the work of the others. Working together, the small groups began to see the overall vision for the district. Committee chairpersons representing instruction, building operations, transportation, and site-centered leadership came together to share their plans. For the first time ever, people representing different parts of the school system shared their visions for improvement.

The district has a strong commitment to measure, report, and use performance data to improve processes. This was a missing link for our school improvement efforts for some time.

Results of our continuous improvement efforts to date include these:

- Each school improvement team uses a complete and disaggregated report of data on attendance, promotion rates, AP classes, and achievement.

- A mainframe system identifies and tracks students who are at-risk for failing the state's mandated literacy passport test.

- Extensive program evaluations provide qualitative and quantitative data on specific programs in the division. Two major evaluation efforts are an Audit of Select At-Risk Programs and the Chapter 2 Evaluation Report. Results of these evaluations are reported to the School Board, Superintendent's cabinet, and personnel involved in the programs.

- An extensive school-community survey was taken during the spring of 1992. Responses from more than 12,000 customers reflect changing perceptions and attitudes toward the school system by students, parents, teachers, and administrators. This survey was developed after benchmarking 10 other surveys from around the country. Information from this survey is reported to the school board, superintendent's cabinet, administrative workshops, local newspapers, and a series of superintendent's reports about the schools.

- Important writing assessments are being made for the first time in each school. Two elementary schools are assessing the writing level of kindergarten, first, and second grade students to identify instruction that will help these students. A writing sample for every sixth grade student at all elementary schools was also given this year to determine the writing level of our students. This assessment is helping us identify the strengths and weaknesses of our writing program throughout the district.

- We developed a format to help each school analyze, organize, and report data and summarize its achievement; these summaries were compiled into a booklet that serves as a resource for the superintendent and his cabinet. A principal helped design the format of the summary to ensure that essential data were included.

- Quality action teams are tackling system problems. One such team is developing a new purchasing system for the district.

- We are giving increased attention to the customers we serve. Recent surveys have sought to determine (a) the effectiveness of our laboratory school in preparing student teachers for their first year of teaching; (b) attitudes and comfort level of teachers and administrators with the new teacher performance assessment system; (c) perceptions of parents, teachers, and students toward Portsmouth Public Schools; and (d) the specific data that schools need on the main frame computer.

- We are realizing cost savings as a result of our continuous improvement efforts. Privatizing the fleet maintenance operation reduced the cost of maintenance by 22 percent, saving $170,000 a year. An energy conservation system is reducing fuel and electricity consumption by 34 percent, saving about $400,000 a year.

The benefits of implementing quality management are demonstrated by the passion of our students, teachers, staff members, and administrators to work together to make Portsmouth Schools a better place to learn and to work.

Claude Parent is Quality Manager and Marion Ransom is Quality Specialist for Portsmouth, Va., Public Schools

IV.

Systems Leaders Speak

Quality Goes to School

Patience, Focus Needed to Start District Transformation

By G. Thomas Houlihan, superintendent, Johnston County, N.C.

As a practicing educator for the past 19 years, I have seen many programs and practices implemented in education. Some of these programs have been successful, but many have made no significant difference. Throughout the years, no matter what has been implemented in our business, student achievement has remained static and public criticism has grown.

We have missed the boat in the area of educational reform by focusing on a specific program or practice. Rather, we must look at total quality: the philosophy and value system that undergirds an educational organization.

We cannot improve student achievement with one program or new approach; instead we must look at education as a total organization and develop a philosophy that deals with total quality for that organization.

Change in education is extremely difficult to implement successfully. Schools are highly bureaucratized and politicized and to bring fundamental change focusing on student achievement is difficult at best. Yet, perhaps the best chance for change is when a new superintendent takes the helm of a school system.

As the newly appointed superintendent in Johnston County, N.C., I believe I have the opportunity to bring change and improvement in my district, although the window will be cracked for only a short period.

This window of opportunity must be pried opened further, as the future of an entire school system is closely related to the leadership and vision exhibited by the new superintendent. The total quality approach of W. Edwards Deming is the focus of change in Johnston County. This past spring, we began molding a coalition of people and resources into a win/win opportunity for children. From building trust to reducing variation, the task is long and arduous.

The focus on success includes placing a high value on our customer wants and/or demands. In order to implement and internalize Deming's 14 Points, board members, teachers, administrators, parents, students, and community members are regularly reminded that:

- **There is no instant pudding.** The process of change takes time. Five to 10 years is the minimal amount of time it will take to incorporate the change Deming describes.
- **Trust is the lubricant of successful enterprises.** Developing trust among educators and the community is difficult to achieve. Mistakes will be made and people will be highly skeptical. However, the process must not be altered if trust is to be developed.
- **The obstacles to success are many.** From budgeting to employee evaluation to student outcomes, the entire school system must be willing to "let go" of previous practices and find better ways of achieving quality.
- **Quality cannot be achieved in certain segments of the system.** Total quality means just that; quality in every segment of the system. Custodial practices, teaching techniques, administrative practices, and boardsmanship must be examined to focus on total quality. No individual or group can be exempted, as quality depends upon continual improvement of everyone associated with the district.

The Johnston County School System must believe in people, eliminate barriers so there is joy in work, and seek to make decisions based on data, rather than on opinions or emotions. We must recognize that most of the problems are caused by the school system and not due to a particular circumstance or particular individuals.

We will focus on rapid learning and apply that learning throughout education in our district. The chance for change must be seized quickly, yet we're talking about plans that will take a number of years to see improvements. The bottom line is simple: We really have no choice if our educational system is going to make significant improvement and prepare youngsters for success in the 21st century.

'Barrier-Bashers' Welcome Here

By Jane Hammond, associate superintendent for instructional services, Wake County, N.C., Public Schools

A team from our schools recently discovered that many of W. Edwards Deming's approaches fit very well with our school improvement process. We began our improvement process by examining our common beliefs and philosophy about schools and asking, "How will our beliefs change what we are doing?" Based on those discussions, we created a clear purpose for our schools.

A coalition of more than 100 people representing our community identified ways and created a countywide plan for each segment to build a brighter future for Wake County youth.

To reduce inspection and build quality into the teaching and learning process, we got serious about carefully establishing an effective comprehensive plan with action steps. We decided that the best planning was shared, step-by-step, with clearly identified criteria for assuring quality implementation, ownership, and commitment.

Second, we developed a teaming approach to help us support and monitor progress in implementing programs.

Each central office team works to serve the district's 86 schools as they develop individual plans that fit into the countywide plan. Inspection still occurs, but it focuses more strongly on the process of improvement.

After discovering that most staff development was ineffective, haphazard, not performance-based, and not related to clear roles, purpose, or quality outcomes, we began improving by developing profiles for staff roles.

Then, performance expectations were developed and a comprehensive staff development program was initiated to offer experiences connected with new role definitions.

A Deming point essential to our continual improvement is to encourage and reward risking. We encourage staff members to be "barrier bashers" and to eliminate the "we-they" way of doing business. We have, instead, emphasized individual decision-making, personal responsibility and pride, and ownership.

Our goal is quality, not simply for the students we serve, but also for staff members who are committed to the system and to community members who support us.

Translate Quality into "Educationese"

By David M. Gangel, superintendent, Rappahannock County Public Schools, Sperryville, Va.

Educators often cringe at the thought of using a business concept or idea in education. When is the last time you heard a group of professional educators talk about customers, service, and external requirements? In fact, a teacher once told me that he pursued a career in education and not business, therefore he wanted not to consider the concept of "customer."

Even if business and education are concerned about different things, is there anything that education can gain from quality? The answer is an absolute, unqualified "yes." But when talking with educators about quality, we need to redefine the language. Educators don't want to talk about customers, return on assets, and the cost of quality in reference to school operation. Educators want to talk about ways to help children learn.

All right then, let's translate quality into "educationese" and explain how quality can help children learn: The driving force of quality is continuous learning process improvement for children.

It's the responsibility of every educator and support person to contribute to and help improve the learning process through cooperative structures such as quality circles and project teaming. Quality supports and promotes teacher empowerment and site-based management.

Process, not personnel, is considered first for improvement. If a problem related to learning emerges, examine first the instructional process, not the instructor. Quality always strives to fix the process problems, not the blame.

Using the quality improvement process, how will educators know in which direction to steer the process of student achievement and learning? Or, what is the process objective?

The quality concept states that only those who use the process results can provide the input for specific needs or outcomes. Thus, it's up to the community, potential employers, and higher education to provide input about student learning.

As educators we must find ways to determine the needs of the community, potential employers, and higher education. If public education can satisfy their needs, how then can public education be anything but successful?

Once learning processes are improved to the point that students learn what is needed the first time, schools will reduce the need for remediation and its associated costs.

Savings associated with less remediation, retention, and failure are more than monetary. The savings of self-esteem, future productivity, and social institution distress could be tremendous.

There is one caveat: Translations of quality terminology and examples are good for short, introductory responses to the benefits of quality. However, there is no substitute for a complete understanding of quality in the current business-industry terminology.

The language of quality is foreign to educators, but the promises of quality have education written all over them. To reap the benefits of quality we need only accept the language of quality or translate it into "educationese." Children and learning are too important to let words get in their way.

Partners in Action!

By Zona Sharp-Burk, executive director, Minnesota Academic Excellence Foundation, St. Paul, Minn.

Is there a place in K12 education delivery systems for an award to recognize and promote quality? In Minnesota, the response so far seems to be "yes!"

Educators at a recent seminar delivered by the Minnesota Academic Excellence Foundation (MAEF) gave several reasons why such an award process would benefit schools and students.

First, they felt that the process of self-assessment against a set of Malcolm Baldrige Award-type criteria would be valuable in setting goals and pursuing improvement. Second, participating in the awards process would let the public know that schools are serious about improvement and quality issues. Third, the group saw the process as a way to focus local community involvement in schools and to foster new business-education partnerships.

MAEF was charged by the Minnesota legislature in 1990 to develop a plan for a Schools of Excellence program that would elevate the performance and operation of all schools, encourage improvement, and provide for a process for schools to help each other.

The task force appointed by MAEF to develop the Schools of Excellence plan includes members from business and education organizations, the legislature, and schools.

The Schools of Excellence task force recommended that MAEF develop an awards program based on joint review by communities and schools, as well as traditional means by which schools judge themselves to be excellent.

The seven characteristics recommended by the task force closely resemble those of the Baldrige Award:

- Leadership;
- Customer satisfaction;
- Information and analysis;
- Strategic planning;
- Human resources utilization;
- Product or service quality assurance; and
- Quality results.

The MAEF Board then asked 20 education groups to respond to the task force report and recommended that the task force work with the Minnesota Council for Quality (MCQ), which is designing a Minnesota Quality Award modeled after the Baldrige.

The education groups indicated that the Schools of Excellence project would indeed benefit schools and students. Last summer, MAEF invited each of these groups to a session hosted by Unisys to learn about the Baldrige Award and to think about how a pilot activity might proceed.

Representatives from IBM and IBM Rochester (a recent Baldrige Award recipient) shared their experiences with the award and the quality process.

The educators' responses to the pilot plan were generally enthusiastic. For the next nine months, 12 elementary and secondary schools and school districts will work with MAEF and the MCQ to pilot test the seven criteria. Each pilot site will examine one common criterion—customer satisfaction—and another individually assigned criterion such as leadership. IBM has loaned an executive to the project, and a Minnesota business involved with the Minnesota Quality Award process will be a partner to each education site.

The interest by schools and education groups in a quality award and the quality process is not new, but with the advent of the Baldrige Award, this interest has increased exponentially in a short period of time.

However, the process of self-assessment, ranked as a most valuable aspect of the awards process, will have meaning only if qualified and affordable resources are then available to assist schools in improving in identified areas.

For more information, contact Jason Roos at the Minnesota Academic Excellence Foundation, 751 Capitol Square Building, 550 Cedar Street, St. Paul, Minn. 55101; (612) 297-1875.

Partners in Quality: Business and Education

By John R. Reed, superintendent, Newtown, Conn., Public Schools

What needs to happen in school systems closely parallels what many private companies in the United States are pursuing with great gusto. Schools realize, as does the private sector, that significant improvement is needed in the quality of their products and services.

For schools, quality is reflected in what their students have learned and can apply. Companies and schools realize that quality is not going to result from external rules and regulations. Inspection of workers by foremen or principals is not cost effective and cannot ensure quality.

The quality science movement believes that the culture of the organization must undergo a significant change; people must believe there is great value in doing something right the first time and that prevention is far more meaningful than remediation. Without first improving the inner organization through an adaptive culture, updating administrative skills, and developing a cooperative team effort, any change in the formal system will be window dressing.

A major part of this culture change is a very active engagement of the workers as thinking partners in shaping decisions that bear directly on production or learning. Industry talks about zero defects and schools talk about "all children can and will learn well." These goals provide a mission to drive both industry and schools.

Students, who are not passive entities rolling down a production line, have an important role to play in school; indeed, they are a special form of worker, a knowledge worker.

The more educators can do to enable students to be productive knowledge workers, the more successful students will be. This means teachers have the responsibility of judging and selecting the best teaching strategies and materials to increase the chance that every student will find success.

During this past year, many school systems have increased the number of opportunities for teachers to work together collegially to design instructional strategies and materials. As this continues, teachers will naturally assume more accountability.

The quality movement tells us it is important to understand and collect information about the results we are achieving to determine if our customer needs are being met and to solve problems.

An assessment system that attempts to capture every major factor or nuance to measure total quality will be too complicated and not understood or trusted. At best it will be dysfunctional, and at worst, harmful. Assessment must be kept simple and concise.

The quality movement in the public and private sectors encourages people to see the wisdom of selecting prevention over remediation, commitment over compliance, trust over fear, success over failure, inclusion over exclusion, problem solving over placing blame.

As more CEOs formulate their action plans to help education, they must draw from their companies' understanding and experiences with quality.

By explaining to the public how quality principles can be applied to schools, executives will help pave the way for meaningful improvements in education.

You've Heard of Team Xerox? Well, Here's Quality New Jersey!

By Philip Esbrandt, superintendent, Cherry Hill, N.J., Schools

Quality New Jersey began nearly three years ago as a coalition of business, education, and government leaders who were interested in promoting total quality management throughout the state in both the public and private sectors.

Its mission is to encourage the application of total quality management philosophies and methods through a team effort focusing on continual improvement of industry, health services, education, government, and the environment to improve the quality of life in New Jersey.

The initial focus is threefold: to improve public awareness of quality, to promote quality leadership statewide, and to establish an ongoing resource for those seeking help in quality improvement methods.

Under the larger umbrella of Quality New Jersey, the Education Focus Group was created and has started to flourish. We are very excited about our goals and our recently developed improvement model for schools, which we are currently sharing with school leaders all over the state.

To make real and lasting improvements in schools, we are advocating to school leaders a model that includes:

- *Establishing the importance of district and community personnel to commit to an improvement process.* A district's superintendent and school board are responsible for initiating this commitment, but the success in achieving quality processes requires everyone's commitment in the community.
- *Developing, implementing, and living a vision shared by the total school community.* School administration and staff cannot accomplish quality practices without an ongoing dialogue to determine direction and the direct involvement of parents, students, business people, and community residents.
- *Creating a learning organization.* Employees pursue new learning as a part of their personal growth and participate with others to assist organizational learning. Together, these learnings promote improved operational practices and improved learning of students.
- *Conducting planned change for improvements in learning environments.* This can be achieved through risk-taking, elimination of fear, and regular experimentation.
- *Merging internal and external school environments with appropriate information.* Continuous information flow, which is essential for improvement, includes student achievement data, student attitude and behavior data from outside and inside the organization, business and societal data which reflects needs in external environments, perceptions of outside stakeholders, and processes used to obtain improvement.

To support our efforts to implement this improvement model, Bellcore (Bell Atlantic's Research Facility), AT&T, and others are developing training components for the improvement model and total quality tools.

This spring, these corporations will sponsor a five-day workshop to help prepare eight school district administrative teams to implement quality concepts and practices in their districts and schools.

From leadership in implementing total quality principles and practices in the operational processes and instructional content within New Jersey's educational systems, students and employees will hopefully come to share our vision of a quality educational experience for every student.

For more information on this effort, contact Phil Esbrandt, superintendent of schools, Cherry Hill School District, Heritage School, Browning Lane, P.O. Box 5015, Cherry Hill, N.J. 08034; (609) 429-5600. Esbrandt serves as chairperson of the Education Focus Group.

Unlearning Old Behaviors, Learning New Ways

By Seldon V. Whitaker, superintendent, State College, Penn., Area Schools

The following comments on total quality management in schools were excerpted from AASA's Audio Workshop "Quest for Quality."

I think what has been most exciting to me is that total quality management seems to bring together a number of seemingly disconnected features of educational leadership in the 1990s under one umbrella.

It bring things together such as site-based management, empowerment of teachers, decentralized control, and I think, a new and exciting way of looking at the way in which teachers, administrators, board members, and community members work together.

I think one of the most important things is that the new way stands the traditional, hierarchical organization pyramid on its head. It flips it over and begins to tell us that students are our primary customers. Students are really what our business is all about.

It gets us much more focused on the essential process of education.

I've always been a believer in management by objectives, merit pay, and annual performance evaluations; then here comes W. Edwards Deming with his 14 points which say those are dysfunctional activities.

It took me awhile to understand why was he saying that and did I really want to go through that process of unlearning some things that I had learned to do pretty well.

Deming says that there needs to be a transformation in management. For instance, we've known for a long time that education functions best when people are working together cooperatively.

And yet, we've been willing to impose these competitive practices on essentially a cooperative enterprise. Deming says that all enterprises essentially succeed through teams and cooperation.

The first significant pilot project we did using the Deming method involved our academic teachers working with vocational students—those students who would enter the work force upon graduation.

We went out and interviewed approximately 30 employers to determine what their requirements were for entry-level employees.

We came back, analyzed our data in order to develop our improvement plan, and found that the employers were looking for a number of things that we didn't even know about.

For example, they wanted employees to be good team members, peer trainers, and self-motivated. Our teachers said, "We can't do this the way we are currently organized."

They are now, as a result of that project, working with a competency-based program that was developed to respond to those employer needs. Four academic teachers plus a guidance counselor and a reading specialist work together as a team.

They have total control over the shape of the student day and can determine what kind of time needs to be devoted to which subjects in order to achieve those kinds of competencies.

It's wonderful to just watch this group of people working together with those kids. And, interestingly, the enrollment in their program has increased significantly since school opened.

Total quality management is an approach that we simply have to get on board with. It's not a fad, it's not the latest buzzword—it's for real and the stakes for our entire society that are bound up in this quality movement really mandate that we get on board with it.

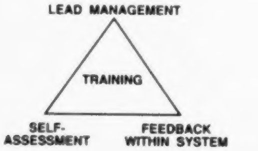
For more information, contact Seldon Whitaker, superintendent, State College Area Schools, 131 West Nittany Ave., State College, Penn. 16801; or call (814) 231-1016.

One District's Approach to Total Quality

By Bill Borgers, superintendent, Dickinson, Texas, Independent School District

Our district has been involved in total quality management for the last two years. After all school staff received 30 hours of training, we established self-directed teams, conducted several internal customer/supplier meetings, eliminated end-of-year evaluations, and began to implement quality improvement plans.

Our approach to total quality is best symbolized by this triangular relationship:



The key ingredient is lead management. Quality cannot be obtained with management by coercion or fear. Managers must become coaches and facilitators. This requires listening to customers and those who own the processes.

Quality is fostered by creating an environment where employee and student needs of belonging, recognition, choices, fun, and safety are fulfilled.

Next, everyone in the system must place quality first. Everyone must identify both their internal and external customers and suppliers. Once customers are identified, everyone in the system must reach consensus on a definition of quality and process variation. Opportunities for study then can be selected.

Customer/supplier meetings need to become common so that groups can share expectations and requirements. Students need to be taught how to recognize quality work and how to obtain quality through continual improvement.

All employees need to survey their customers and conduct interviews with them. Partnerships with suppliers must be fostered to obtain more quality in the input of the system. No system can reach quality without effective feedback within and from outside the system.

Management must provide the vision and organization for quality improvement. However, those closest to the process should have authority to assess the measure of quality.

Quality is best improved by workers and students assessing their own work and then developing and implementing plans to improve it. This means eliminating merit ratings, evaluations, mass inspection, and the traditional student grading system. It means collecting data at all important points in the processes and learning statistical process control (SPC), specifically, how to use control charts, check sheets, and histograms. It means allowing students to improve their grades, rate their own quality, and chart their grades.

Individual use of total quality management can noticeably improve the quality of the district's products; however, team use of TQM will dramatically improve quality.

Our district is moving into the team concept in stages. For the 1991-92 year, three administrative teams are using TQM principles. These are in the areas of *curriculum instruction and training*; *quality improvement* for tackling districtwide problems; and *management action* for approving all recommendations for quality improvement and managing the district strategic plan.

At the campus and department levels, management teams are responsible for the campus/department strategic plans, organizational health, performance indexing, and problem-solving. The next step will be a team approach to problem-solving composed of volunteer employee teams who want to be empowered to improve quality in their areas.

All these concepts are part of Dickinson's five-year plan to become a customer-driven school district.

For more information, write Bill Borgers, superintendent, Dickinson Independent School District, P.O. Drawer Z, Dickinson, Texas 77539; or call (713) 534-3581.

Pick the Low Fruit First

By David M. Gangel, superintendent, Rappahannock County Public Schools, Sperryville, Va.

When an organization first implements quality and starts organizing project teams, there is a natural tendency to try to solve the problems that have been unsolvable in the past. Don't succumb to temptation.

Initial project teams will be, in large part, a learning experience for an organization. In order to implement quality, an organization will develop a series of new policies, procedures, and guidelines which, when new, are untested.

A quality project team will use a sequential methodology for quality improvement and/or problem-solving. Initial project teams will find bugs in early quality policies and procedures as well as difficulty in the use of new methodologies.

Attacking difficult issues with initial project teams only complicates the organizational learning process. In other words, world hunger would not be a good first project.

Instead, pick the low fruit. Select initial projects that are simple and offer a reasonable chance for success. Once the bugs are out of the policies and procedures, and project teams understand the methodology of quality, take the challenge of unresolved issues.

The Rappahannock County Public Schools are in their second year of using quality. During the first year of quality implementation, two project teams were identified. Both took on extremely difficult issues.

One team attacked student failure/dropouts and the other, disciplinary alternatives. Both teams produced insightful solutions, many of which are being implemented within the school system. However, alot of effort went into interpreting and modifying procedures and practicing the use of quality methodology.

Looking back, two thing were accomplished: the use of the initial project teams, and the implementation and refinement of an institutional system for quality. From our experience, I would recommend specifically addressing both objectives the first year. That is, develop an institutional system of quality and start initial project teams.

When considering both objectives, it makes good sense not to start at the top with the big issues. Rather, choose simple projects so that the internal process of quality can be established.

Remember, pick the low fruit first.

Tales and Travails from the Cutting Edge

By Barbara M. Bell, editor, Quality Network News

How are educators learning about and using quality management principles in their districts? We recently had a rich opportunity to probe for answers to this question and others by talking with school leaders who attended the Total Quality Caucus at the 1992 AASA Convention.

We discovered school leaders are hungry for knowledge on how to transfer and apply TQM principles to their organizations. Most educators seem to be taking a steady and studied approach to learning about quality, whether they've just started or are well into their journeys.

Many school leaders have hooked into quality through the effective schools and outcome-based education movements. Akron, Ohio, superintendent Terry Grier says, "What quality has done for us is give us a framework under which school improvement, including effective schools, fits so nicely."

Nearly all the school leaders with whom we spoke reported that their most powerful learning experiences about quality have been through formal seminars led by quality experts.

Beverly Reep, superintendent of Westlake, Ohio, schools, reports, "By the time [our team] finished with the four-day Deming teleconference, the power and excitement was such that I didn't feel alone in implementing it."

No matter how they've started their learning, each school leader is taking a great deal of time to understand what quality means personally, and how this idea combines with other management philosophies.

A few districts are using the tools of total quality management to improve system processes. Gary George, superintendent of Gardner, Kan., is using some qualitative data techniques to understand his dropout rates, bus routes, test scores, and even building air intake.

Several other districts have begun to "spread the word" of quality by training staff, working in teams, and setting goals with community groups.

In the Lakeview School District, Battle Creek, Mich., assistant superintendent Linda Borsum reports that they're taking initial small steps such as setting up a suggestion box opened jointly by the superintendent and union president; offering a library of readings for the staff on quality; and holding regular "quality conversations."

All school leaders with whom we talked are experiencing challenges in moving their districts forward in quality. Many cite budget and time constraints. Reports Grier: "Our greatest challenge is finding resources to meet training needs. While business spends about two percent of its capital on training, the school district spends about a tenth of that." Grier, who has tapped into the surrounding business community, now has an advisory council that is helping devise training for the schools.

Bill Keane, superintendent of the Oakland County Intermediate School District in Michigan, reports as head of an educational service agency, he is having difficulty determining measures of success with his processes since his group is "one layer removed from kids."

Naturally, many educators report their greatest challenge is to change the mindset deeply ingrained in their systems. Robert Kattman, district administrator in Glendale River Hills Schools in Wisconsin, says, "It's easy when faced with a challenge to revert to the old way of thinking—to focus on the individual behavior rather than the system."

What will the year ahead hold for these cutting edge leaders? They respond: continual learning about their system processes, increasing their staff's knowledge of quality, more training on using quality tools, and always, trying to satisfy their hunger for a deeper understanding of total quality schooling.

Can the Lone Ranger Join the Dream Team?

By Carolyn Downey, superintendent, Kyrene School District, Tempe, Ariz.

Quality leadership challenges administrators to become interdependent leaders using a systemic approach to decision making. They share power and become equal colleagues with other administrators working to solve the organization's problems and fulfill its mission.

The administrator who has used the paternalistic or benevolent dictator style will not make this transition easily. Like the Lone Ranger, he or she has always relied on methods that have validated administrators for years: The administrator sends out a scout to prepare the way, gathers data, and solves the problem. The people are rescued, and the administrator rides into the sunset with a "Hi Ho, Silver!" Employees as well as administrators like this style, but it creates dependency.

The new leadership style asks the administrator to become a team player, working collaboratively with employees to solve problems. In most cases, all must make major changes in attitudes and actions.

How can people be encouraged to function differently? Mom and Dad Administrator must quit taking care of the children (staff). Power by one's position is gone, along with the personal rewards of being the paternalistic administrator.

The dependent staff member may feel insecure when Mom and Dad Administrator are no longer solving problems, taking care of needs. The staff member must now become a problem solver, moving from being a power*less* to a power*ful* person. Many resist power. Staff have been asking for a greater piece of the action, but when given the opportunity, they often feel uncomfortable.

Other customers, especially parents, have also wanted more involvement. As they come into the collaborative process, both faculty and the paternalistic administrator feel threatened. Shared power and shared decision making are difficult.

How does one move a person and a work group from a dependent to an *inter*dependent stage? Psychologists say that people typically do not go directly from dependence to interdependence but through an independent stage. One administrator noted that therapy took place for two years before the system even began to start functioning somewhat interdependently.

Administrators may rebel. Staff teams often disagree with decisions of others. Staff will want to change rules, regulations, and approaches, often when no rationality appears. Some approaches may need to change. Other changes will amount to tampering.

Administrators who have been validated for being articulate and persuasive are now asked to work as members of integrated teams in a system. They need new ways of thinking and new collaborative skills.

Organizations do not change overnight from being dependent to interdependent. Administrators, staff, and parents who have been involved in participatory organizations will move easier and faster toward systemic approaches. Those in paternalistic organizations will take longer. Great patience is required—with self and others. Some administrators and staff may choose not to change and will leave the system with much pain.

The road is rough. But exciting results lie around the bend when administrators, staff, parents, students, and external customers come together in an interdependent systemic way to fulfill the organization's mission. Each member becomes a highly competent, best-in-the-field person working collaboratively with all the others—the Dream Team.

New York District Wins Quality Award

By John E. Helfrich, superintendent, KenmoreTonawanda Union (NY) Free School District

Our district was the sole winner of the 1992 Excelsior "Quality at Work" Award in education, the state's version of the Malcolm Baldrige Award. Governor Cuomo unveiled this competitive awards program in January.

The Excelsior Award incorporates three quality components—achievement, management, and workforce based on employer-employee partnership.

A team of 35 administrators, teachers, support staff, and parents labored for six weeks to put together the 75-page application for the award. The team, headed by Bill Keasling, my administrative assistant, crafted a document that became a ten-year history of our school improvement efforts.

We avoided titling the program, believing that if we labeled it we would strive to "become" something rather than work toward continuous improvement. As it turned out, we did decentralize most of our functions, develop a shared decision-making process, and make school sites more accountable for improving student outcomes.

A major goal is to develop our human resource potential by involving each of our 1,300 staff members in personal and professional growth each year, focusing on improving student results.

Our unions have been most cooperative in fashioning contracts that reward staff members for this activity instead of rewarding individuals for random credits taken at universities.

Our human resource development program is one of our exciting new frontiers. We take great pride in recognizing staff development heroes and heroines who take leadership. These individuals come from all departments and schools, with no differentiation among teachers, administrators, or support staff personnel.

We have come a long way in our quest for quality, but we know the journey will never end. Involvement of our personnel, including our supportive Board of Education, in visionary planning and the subsequent implementation of our plans is one of the program's real strengths.

Using planning teams in each department and building, we all work to achieve consensus on everything, from employing new staff members to deciding how funds will be expended at the building level. It is gratifying to see leadership evolving at every level of the organization.

Our student outcomes have improved considerably over time. Scholarships, State Test Results, and constituent satisfaction have all been benchmarked and are steadily improving. As our focus is on these areas, we feel that our approach to continuous improvement is paying off.

Our organizational pyramid has been flattened and significant role changes have taken place. We all strive to *exceed* our constituent demands, not merely satisfy them. Involvement, development, striving for quality results, and constant assessment and feedback are all part of our attempts to achieve total quality.

Beyond TQM to TQMS

By Armand Fusco, vice-president, Galileo Quality Institute, Nashua, N. H.

In public education, the ultimate purpose of TQM is to achieve TQS, Total Quality Schools. However, the reality is that the goal must be TQMS, a Total Quality Mega-System.

The major theme of every TQM workshop, book, article, and conference has been to improve schools by continuously improving the processes and focusing on the needs of the "customers." But if this is the only goal of TQM, the result will be TQMO, Total Quality Missed Opportunity.

TQM advocates agree that a quality transformation can only be achieved by changing the culture of an organization. The school, however, is not self-contained; it is only one part of a larger system consisting of the community, the state, and the nation.

The school system must be viewed in this context because the school does not have constant control of its "product" (the student). Unlike a business product, the school's product reacts to the various value-added inputs of the educational process. Therefore, if the culture of the school is to change to a quality focus, the mega-system (consisting of the parents, community, state agencies, corporate enterprises, and political process) must also have a quality focus because each adds value to the student.

Some may consider this a utopian, unachievable approach. Yet a TQM vision must stretch every resource of education to achieve not just a Total Quality School, but rather a Total Quality MegaSystem. Only the megasystem can provide *total* quality value to the student; therefore, each part of the system must share the responsibility and accountability.

This TQMS concept would break the current paradigm paralysis that the school is, in fact, a system capable of transforming itself. Forty years of failed educational reforms is testament to the fact that a systemic approach is required. Even the reformers now accept this reality.

What would need to change? What value-added activities must the school system then perform?

For student instruction, it would mean developing an integrated curriculum to encompass TQM principles, practices, tools, and techniques. "Unquality" student work would not be acceptable. It would need to be redone until it met a quality standard. This is a reasonable expectation if the students are given enough time and appropriate instruction.

Significant and dramatic system changes would be required to achieve such quality standards.

For parents, the school must provide TQM awareness and training so they would know what to do at home to add quality value. Would this be easy? No! Can it be done? Yes! Technology would be invaluable in accomplishing this goal.

For the business community, the school would have to help create partnerships with major corporations (or a Chamber of Commerce) to provide TQM awareness and training to the small business community. Unlike larger corporations, small businesses do not have the resources for TQM training. Schools could thus provide a vital service to those who contribute to the economic well-being of the community. The payback would be beyond measurement. Incidentally, students would be helpful in this process because so many work in small businesses.

Lastly, in this TQMS model, the school would have to help structure an alliance of the megasystem stakeholders. This step is crucial not only to support the transformation process but also to prevent petty politics, personal agendas, crisis-management, and school board "tampering and tinkering" from contaminating the process.

Unless we go beyond TQM to TQMS, our nation will not endure as a quality economic, political, social, and educational leader.

By the way, this TQMS model is not theory only: with our help, it is being implemented by a regional school.

Dr. Fusco was a superintendent of schools for 17 years.

Penn State Opens Center for Total Quality Schools

By Toni J. Duchi and Beverly Kline, Penn State University

In what may be the first university-based total quality initiative for schools, Penn State's College of Education has established the Center for Total Quality Schools.

Center Director William T. Hartman, professor in charge of the Educational Administration program, says the center will be the vehicle for transferring to schools applicable concepts of total quality leadership.

More importantly, says Harman, in teaching TQL principles, the Center will help break the boundaries that have been set in schools and thus release teachers' professional creativity.

The Center's inaugural quality seminar was held in the spring. Teams of administrators, teachers, school board members, and business leaders from 20 Pennsylvania districts heard keynote speaker Stephen Schwartz of IBM say that society's expectations of education have risen sharply.

"We expect schools to educate everyone, not just the brightest, and to educate them at levels previously attained by only a few. So the effort you are making is more than admirable—it is essential to national survival," Schwartz said.

As industry looks to schools to help educate students in quality concepts, so schools will look to their local businesses and industry to team in this effort by contributing financial assistance and corporate guidance.

In some cases, the financial assistance will enable school district teams to be trained in TQL principles and to train others in turn.

"That's what's unique about our program," Hartman notes. "We are asking businesses to become involved in the change process. Over the years, businesses have been frustrated by their inability to affect schools. This Center will enable them to participate in a structured, positive way."

The Center will provide training programs; offer credit graduate and undergraduate courses on TQL; search out, select, and develop materials for training that are adapted for educational settings; and host presentations by major TQL experts. The Center will also conduct research on total quality and provide support for successful implementation in TQL schools.

The training program began in September when ten school districts and four intermediate units participated in the Center's first seminar in a yearlong series. At the first seminar, which introduced the concepts of quality, keynote speaker David Luther of Corning, Inc., described Corning's experiences and outcomes with total quality.

Some 20 to 40 Pennsylvania schools have had some involvement with TQM, Hartman estimates. "Even though people seem ready and eager for this, it is not a quick fix," he cautions. "It involves a change in culture—to value quality and to make that an objective in every group."

Hartman believes, however, that quality improvements in education will soon be even more evident. Application of TQL concepts in schools will result in better teachers, more efficient operations, more cost-effective schools, and graduates who can meet the challenges of today's global society.

For information on the Center, write Dr. William T. Hartman, Center for Total Quality Schools, Penn State University, 308 Rackley Building, University Park, PA 16802, or call (814) 865-2318.

The T in TQM Stands for Teamwork

By David F. Hendrix, superintendent, Poudre School District R1, Fort Collins, Colorado

Our district's quality efforts sprouted in 1988 from humble beginnings that focused on support functions. They received a jump start from a small state grant in 1991 and have blossomed thanks to a huge investment of time, materials, and human resources contributed by Hewlett Packard.

More than 250 employees have been trained in TQM—an entire junior high school staff, all building principals, all central office administrators, and leadership in the district's teacher and support staff associations.

Twenty-two of us, including yours truly (Yes, Dr. Deming—top-down commitment!), have become qualified TQM facilitators after participating in three two-and-a-half day intensive simulation-based sessions, the heart of Hewlett Packard's quality training program. We learned facilitation skills through participating actively as quality team members, by shadowing HP facilitators as they train their employees, and finally by "soloing" as facilitators of quality teams.

Was the training time-consuming? Yes. Was it demanding? Yes. Was it interesting? Yes. Was it a valuable learning opportunity? Absolutely!

In our facilitator training, we developed an understanding of the theoretical and applied concepts of TQM. We learned from a different vantage point just how TQM, as a management system, applies to K12 public school education.

The rigorous training I underwent gave me insights into all of TQM's essential beliefs and premises—the use of tools, data-driven decisions, variance reduction, assessment and measurement, continuous improvement, customer satisfaction, universal participation, and teamwork. But for me, one stood out among the rest—teamwork. I believe that failure of a quality team to function as a team places TQM at risk more than any other element.

Teamwork is much more than a group trying to accomplish something. It is a specific way of using a common process and structure to focus individual roles and efforts on achieving common objectives, thus the effectiveness of the group effort is greater than the sum of the individual efforts. Teamwork is everyone doing the right things at the right time in the right way with the right resources.

Time after time during my training, I observed quality teams comprised of well-intended, bright, and hard-working individuals stumble and fall. Yet the teams that came together quickly and overcame the human challenges associated with group work made significant gains.

Consistent with research in group dynamics, in every observed situation, teams underwent these stages of development:

1. Forming (closed) — need for orientation, some confusion— randomness, guarded communication, searching for direction;

2. Norming (open) — tentative and erratic behavior, usually leader centered or directed, testing limits — trial balloons, first interaction;

3. Storming (trust) — confrontive and challenging, conflict surfaces, individuals "get things off their chests";

4. Transforming (belief) — moving between task and group concerns, interaction develops, positive feelings apparent, communication more open; and

5. Performing (goal) — cooperation in group, communication open, high involvement, shared leadership, decrease in power relationships.

TQM requires time for teambuilding activities before any task orientation. These activities help members resolve conflict, share in decision-making, reach consensus, and listen with respect, regardless of rank.

Clearly, time invested up front helping teams move systematically through the stages of group development helps reach group objectives and desired outcomes. Failure to invest time to develop the human side of a team is at best an uncalculated risk not based on data, and as such violates important tenets of TQM.

Colorado public schools face a funding shortfall and tax/spending limitation amendment this year. We can resist the consumer's demands for improved results or we can face this challenge as have many American businesses and through TQM learn to do more with less and improve quality.

The choice is ours. In Poudre School District R1, we choose quality management.

Finding Funding for Quality Training

By Lew Blackford, superintendent, Sidney City (Ohio) Schools

School administrators who are strapped for funds to meet daily operating expenses may believe that Total Quality Management is beyond their reach. Sidney City Schools in Ohio has discovered that need not be the case.

Local business leaders first told us about the merits of TQM. Not only could it improve our operations, they said, but today's students must know statistical methods and team problem-solving techniques to succeed in the world of work.

After conducting our own research and visiting nearby facilities, such as the Ohio Quality Productivity Forum and a Honda of America assembly plant, we began to look for money to make Total Quality a reality in our school system.

Our window of opportunity came in the form of a grant. When Ohio made funds available for research in gifted/talented education, we submitted a proposal. As a result, our school system was awarded $100,000—the largest competitive grant the district has ever received—to use TQM in evaluating and improving programs for gifted and talented students. The grant is directed specifically at the gifted program, but its impact has been felt districtwide.

We began by training a group of teachers and all of our central office and school building administrators in TQM techniques. By the end of the 1991-92 school year, we had four TQM teams working on projects that could have a direct impact on the lives of all students.

For example, high school teachers in our district had complained that classroom interruptions were cutting into valuable learning time. Twelve teachers began charting how many times their classes were interrupted and for what reason. They also logged whether the interruptions were "necessary" or "unnecessary." The TQ team discovered that most of the unnecessary interruptions were caused by guidance counselors who were pulling students from classes rather than taking them out of study halls. As a result, our teachers, administrators, and guidance counselors worked together to come up with an improved method for scheduling guidance conferences.

In another project this year, the second and final year of the grant, teams of teachers are looking for better ways to evaluate how much students have learned. Instead of relying on grades from tests and quizzes, these teachers are experimenting with using portfolios (collections of work done by students over a period of time). The results of this study could greatly change the way all students are evaluated and promoted from one grade to another.

This year, more teachers and support staff members, including secretaries and food service workers, are being trained in TQM. The next step will be to set up cross-functional teams to look at district communications, cafeteria operations, and other areas. School personnel are becoming TQM trainers so that more employees, parents, and students can be trained in Total Quality techniques long after the grant money is gone.

From reducing classroom interruptions to determining the best method of evaluating what students have learned, Total Quality Management is continuing to change the face of education in Sidney schools. That change has come about by relying on money from an outside funding source rather than on school district revenues.

Quantum Systems: Next Step Beyond TQM

By Robert Bender, founder of North Star Consultant Services and former superintendent, Meadville, Pa.

School administrators and superintendents are increasingly aware of all the fuss about Total Quality Management (TQM). They hear about customers' needs, paradigms, Pareto charts, cause-and-effect diagrams, XMR charts, and red beads. They read about Deming's 14 points, Covey's seven habits, and the contributions of Juran, Crosby, and many other able thinkers.

Having recently retired after 27 years in public education and eight as a superintendent, I sifted through this motherlode of opportunity to improve administration and instruction in schools and detected a strand that cements it all together. I call it *quantum systems.*

Let me explain. I was fortunate to discover TQM nearly four years ago when I was superintendent of Crawford Central School District in Meadville, Pa. I had a supportive board and a staff interested in investigating "quality in education." The district engaged in 10 continuous improvement projects and applying Hoshin planning to identify breakthrough objectives. Staff members are exploring Quality Function Deployment and participating in the TQM Chief Executive Officers' Roundtable.

Crawford's continuous improvement projects include:

- decreasing the time to complete student psychological referrals;
- reducing the number of students referred for special education placements;
- curtailing the number of substitutes requested by teachers and support staff;
- conserving electrical energy;
- decreasing the response time with regard to the purchase order process; and
- increasing student time-on-task.

In training the teams, the district relies heavily on the Total Quality Transformation materials of QIP Inc./PQ Systems, Inc., of Ohio.

Since retiring, I have gained enough detachment to detect a wide network of interconnections among the many systems that were improved as a result of applying the TQM principles and tools. To me, these interconnections represent the organizational counterparts to the infinite linkages described in quantum mechanics. Quantum mechanics emphasizes the interconnections among all matter. For school administrators, this "matter" is the many systems that make up a school district. It is vital that we understand and manage them.

Peter Senge writes clearly and persuasively about the importance of systems and of understanding them in his best-selling book, *The Fifth Discipline.*

I suggest that quantum systems is the next major concept for development in school district administration. I say this because in all 10 of our continuous improvement projects, we rigorously identified customers, the resources and quality measures needed, the people working in and on the processes, the value-added elements, and the outputs. Collectively, these factors add up to a system. Each system then affects or is affected by other systems and the meshing and blending are limitless! Systems are truly the building blocks of a school district.

Quantum systems is the next step on the march to quality for those bold enough to take it!

Breathing Life into the Mission is the Real Challenge

By Carolyn Downey, superintendent, Kyrene School District, Tempe, Ariz.

Organizations usually develop a mission statement as part of a strategic plan. Large groups synergistically spend hours thinking about and writing the mission statement. The process is exciting. Participants dialogue about the aim of the organization. Finally a mission statement that all can support emerges.

Typically, this sense of mission is sustained for a time. The mission becomes policy and plaques of the mission statement are posted around the school campuses and central office facilities.

But does this commitment to the mission endure? Is there a sense of mission in everyday activities over time? Many competing values in a school system can move an organization away from the mission. All too often, that commitment to the ultimate consumer—the student and each student's learning—wavers.

The administrator's real challenge is to create a living, breathing zeal for the mission. Maintaining a constancy of purpose environment demands a lot of energy. It is not easy, but these strategies can be a start:

- In every situation, ask whether this action, activity, thought, or behavior helps add value to students and their learning.
- For each decision point, ask staff and other stakeholders to question whether this answer helps fulfill the mission.
- Seek opportunities to coach and influence others to think about and take steps to achieve the mission.
- Revisit the mission statement regularly to revitalize employee commitment; ask individuals to check their work groups and their own activities for alignment with the mission.
- Ask each individual—employee, student, parent—to prepare his or her own mission and refer to it often.
- Ask groups and individuals to identify critical success factors that will help achieve the mission. Study those factors and structure the organization to ensure that the success factors are in place.
- Charge any new work group with designing and writing the group's mission in relation to the organizational mission. Celebrate the group's accomplishment in relation to its mission and the organizational mission.
- Provide mission orientation for new employees and ask them to prepare their own mission statements.
- Display plaques of the mission statement throughout the organization's facilities; display posters of work group mission statements when they work as a group; prepare and distribute laminated wallet-size cards bearing the statements including the individual's mission statement.
- Include mission statements in documents such as yearly targets, annual reports, newsletters, letterhead, and community communiques.
- Critique agendas for meetings (board, permanent teams, faculty meetings, and ad hoc work groups) for value to the mission. Debrief meetings and ask whether the discussion and proposed actions help achieve the mission.

Each administrator in his or her own sphere of influence needs to establish rational strategies for breathing life into the organization's mission.

The most important strategy is for each administrator to commit him/herself to the mission statement. Daily actions must model a zest for the mission. Administrators should establish procedures to critique their own actions for regular feedback on constancy of purpose.

The administrator has no more important function than to energize employees and other customers on a sense of mission.

Charting Continuous Improvement in the Classroom

By Lee Jenkins, Superintendent, Enterprise School District, Redding, Calif.

Teachers traditionally rely on two monitoring devices—weekly quizzes that assess the students' ability to cram, and annual standardized tests. These methods are similar to devices most businesses use. Cramming is analogous to a corporate representative coming on Friday, and end-of-year exams are like the inspection at the end of the assembly line. By then it's too late to do anything about the problem.

In a 1992 seminar, W. Edwards Deming suggested a unique process for monitoring a class's instructional growth. He suggested that teachers identify what they want students to learn by the end of the course and test them each week on the square root of the total course content.

For example, he said, if the teacher wants students to learn 100 spelling words (or concepts), the students will be quizzed each week on 10 words selected randomly.

At the beginning of the year, the teacher posts the list of the 100 spelling words and gives each student a list to take home. The words are taught continuously in all subjects, all day. At the end of the first week, the posted list is covered, and the teacher hands a 100-sided die to a student who rolls it and reads off a number. The teacher reads the corresponding word from the list and the students spell this word and nine others similarly chosen.

Teachers then correct the papers and record results on two charts. Chart A, which is posted in the classroom, is a run chart showing the total number of words spelled correctly by the entire class. The teacher also makes a Chart B to display the learning progress of each student.

Teachers in Enterprise School District in Redding, Calif., now use this process to monitor beginning reading, geography, mathematics, Spanish as a second language, and behavior.

Third-grade teachers Arlene O'Leary-Johnson and Vivian Riley at Mistletoe Elementary School in Redding have used the die in their spelling classes with "visible results."

"We can see definite improvement," says O'Leary-Johnson. "I hope to use this in other areas next year."

She hopes to use the die to facilitate the learning process in creative writing as well as science classes by this fall.

"The students get a kick out of it," says Riley. "It's been real positive. You can actually see the progress. I like the visual."

Damon Cropsey, who teaches fifth-grade at Redding's Lassen View Elementary School and has used the die in his social studies class, agrees. "It works very well in my classroom."

The 100-sided die, which resembles a golf ball, appeals to students and makes it easy for them to participate in generating items. It is available from Zocchi Distributors, 1512 30th Avenue, Gulfport, Miss, 39501, for $10 ($17.50 for a colored die).

How Quality Meshes with Effective Schools

By Dennis Kellison, superintendent, Clarke County, Va., Public Schools

How do the gears of the Effective Schools movement mesh with quality principles and practices? Effective Schools training showed us *what* we should hope to achieve. Quality training showed us *how* to attain these goals by giving us a package of useful tools.

When I came here in 1989, I asked the School Board about its goals. I asked staff members to define their concerns. At a retreat, Board and senior staff members tried to define our vision; we brainstormed ideas for improving the system.

We set up a leadership group and gave it some status. We read articles and books. We visited districts moving in positive directions. The Effective Schools research of Ron Edmonds and Larry Lezotte attracted us because it seemed a non-threatening reason to change and was backed by solid research. Faced with change, most people believe that if they have to change, this means what they've been doing was wrong.

We sent staff members to an Effective Schools conference. We established a team for each of the ES correlates: safe and orderly environment, high expectations for students and staff, strong instructional leadership, clear and focused mission, opportunity to learn and student time on task, monitoring of student achievement, and home/school/community relations.

The essence of Effective Schools philosophy is that all children can learn. In hindsight, we see that many structures that education has held onto for so long — retaining students in grade and our grading system, for example — actually limit student learning. When we remove those limits, we see that all children *can* learn. Children do not come to us in labeled categories or with limits on their learning.

In 1989, the Virginia Department of Education invited school districts to apply to participate in a quality program with the Xerox Corporation as partner and trainer. For the past two years we have been learning and growing in this Commitment to Quality project. We have learned:

- interactive skills (how to initiate, react, and clarify ideas; do brainstorming; and conduct quality meetings);
- the problem-solving process; and
- the quality-improvement process.

Quality has become the grease that enables our wheels to turn. Quality tools help us see what to do with the data we've had all along. We also see what additional data we need to collect. Tools make the process work.

Faculty meetings follow quality meeting guidelines (start and end on time, agree on agenda and allot time for each item, allow no side conversations, strive for consensus, etc.). If I run over an allotted three minutes, I soon see the hand signal calling "time!"

Teachers like effective meetings at which they can voice their opinions and be heard. They are learning to reach consensus. They realize they can affect their own destiny. The people who are making the decisions are vested in the school improvement effort.

Our high school faculty discussed the pros and cons of block scheduling. After 34 of 38 teachers voted to move away from the traditional 50-minute daily class periods, the principal asked the faculty to design the block schedule they want. She opted out of these meetings. This fall's eight-period schedule includes four 90-minute periods each day and offers considerable flexibility.

We are better at what we do. We used quality tools to schedule itinerant teachers. Our bus drivers use problem-solving techniques. Dilemmas that formerly seemed insurmountable now seem relatively insignificant. The attitude is, "It's a problem? We can solve it."

Parents, one of our major customers, are happier. For the past three years, we have asked them to grade their children's schools using Gallup Poll education questions. We have 1700 students; last fall we received more than 1000 returns. The percentage of parents giving our schools As and Bs rose from 58 percent in 1989 to 92 percent last fall. Ninety-five percent were satisfied with their child's teacher last year.

This April, Clarke County Schools won the public sector category of the United States Senate Productivity Award for Virginia (the equivalent of New York State's Excelsior Award). The team that made site visits to finalists asked about our reward system. We replied that we have none except the intrinsic rewards — the work is the reward. The major product is constant learning.

Making Processes Customer Sensitive

By Gary George and Tom Trigg, Gardner-Edgerton-Antioch School District, Gardner, Kan.

Since we shared some of our quality improvements in *Quality Network News* in July 1992, we have used a quality tool to improve our enrollment process, thereby pleasing parents, one of our major customers.

Gardner and Edgerton, communities southwest of Kansas City, are six miles apart. Gardner has an elementary school and a high school. Edgerton has an elementary school. The middle school is located between the two towns.

For years we required all parents to come to Gardner to enroll students during four days early in August. Parents complained about having to fill out the same forms each year and about the time it took to move from station to station to complete the enrollment process. Edgerton parents complained about having to come to Gardner to enroll their children.

Early in 1992, we assembled a cross-functional team that included administrators, secretaries, and our business director. As we flow-charted the enrollment process, from the time a parent walked into the room until he or she left, we discovered that our process was truly not customer sensitive. Then we brainstormed to find ways to improve the process.

Now Edgerton parents enroll their children, K-12, in Edgerton on one day in August. Parents who live closer to Gardner enroll their K-12 children during two days in August.

Since we maintain the enrollment data on students from the previous year in our computer system, we can preprint the information on each student. The computer also helps us keep the information current. Parents no longer have to fill out the same forms year after year.

A survey of parents last fall brought praise as well as suggestions for further improvement. They suggested that we provide short-term child care on enrollment day. This summer we are doing that. Members of high school clubs and adult volunteers serve as monitors while children watch a *National Geographic* special. Parents can give their full attention to completing the enrollment process.

Improving the enrollment process and pleasing the parents were only two of the payoffs. A more important one is that we now have a team that focuses on improving processes. Secretaries feel good about the shorter enrollment period and about the attention given this problem. They know that their input was vital in finding solutions. We're ready for the next problem!

Gary George is superintendent and Tom Trigg is assistant superintendent.

Breaking Down Barriers and Removing Fear

By Paul Williams, Superintendent, Lakeview School District, Battle Creek, Mich.

Dr. W. Edwards Deming, the most prominent spokesperson for quality, tells us that we must remove fear and break down barriers. One of the more persistent barriers that impedes quality in organizations is the practice of treating critics as enemies and isolating them from the inner circle.

In Lakeview public schools, we are trying to remove that barrier by "considering our critics as our best friends." It is difficult to do. Critics are discomforting. They sometimes ask difficult questions and demand seemingly unreasonable solutions. However, their insights and observations many times have the potential for great change and improvements.

Benefits of Chin Flies

Carl Sandburg, in *Abraham Lincoln, the War Years*, offered an example of how enemies can spur improvements.

When Lincoln began to campaign for his second term as president, his Secretary of the Treasury, Solomon Chase, campaigned against him. Lincoln told Mr. Raymond, a *New York Times* writer, that Chase's candidacy did not concern him much. "It was important to the country that the Treasury Department should have vigor and energy, and whatever stimulated Chase would be good for the country," he said. To illustrate his point, Lincoln told a story:

> *"Raymond, you were brought up on a farm, were you not? Then you know what a chin fly is. My brother and I . . . were once ploughing corn on a Kentucky farm, I driving the horse and he holding the plough. The horse was lazy, but on one occasion rushed across the field so that I, with my long legs, could scarcely keep pace with him. On reaching the end of the furrow, I found an enormous chin fly fastened upon him, and knocked him off. My brother asked me what I did that for. I told him I didn't want the old horse bitten in that way. 'Why?' said my brother, 'That's all that made him go!'"*

"Now," added Lincoln, "if Mr. Chase has a presidential *chin fly* biting him, I'm not going to knock him off, if it will only make his department go."

Ben Franklin wrote that "The wise Man draws more Advantage from his enemies than the Fool from his friends."

Quality organizations seemingly develop the capacity to include those who question, those who are cynical, and those who have been stung by *chin flies* — who can benefit the organization if fear is eliminated and barriers removed.

In Lakeview, we are working to break down the barriers and remove the fear by striving to develop the capacity to listen to and understand the critics and the difficult parents, teachers, administrators, secretaries, custodians, bus drivers, community members, aides, and cooks.

Quite frankly, we have not convinced them of the rightness of what we are doing in implementing quality initiatives — but we have learned from them.

Yes, Quality Can Thrive in Inner-City Schools, Too!

By Franklin P. Schargel, Quality Coordinator, George Westinghouse Vocational and Technical High School

Q*NN* readers know how quality management techniques succeeded in Sitka, Cherry Hill, Beloit, and Kenmore. But could an inner-city school use these techniques to change its instructional process? This was our challenge when we began our "total immersion" in January 1991.

George Westinghouse is one of 117 high schools in New York City. In the past two years, the city and state have cut $750 million from the education budget. We lost 21.2 percent of our staff to budget cuts in the past five years.

We are a typical inner-city school. In 1992, we had 1,759 students, of whom 76 percent were black, 21.3 percent Latino, 2 percent Asian, and 0.5 percent white. Most students come from single-parent families. In 1992, half were on free or reduced-price lunch.

Although Westinghouse, New York City's largest vocational and technical high school, is open to all city residents, most of our students live in Brooklyn inner-city neighborhoods. Some travel up to two hours each way on public transportation. We draw students from 203 feeder intermediate and junior high schools.

Westinghouse problems mirror those of many inner-city schools: a high attrition rate and an aging faculty; students with poor reading and mathematical skills; lack of motivation; low self-esteem; and a history of failure.

We were a good school when we began our process. TQM techniques are making us better. Every time we apply the process, it works. Here's proof:

- Sixty-nine percent of graduates go to college, even though most are the first in their families to finish high school.
- Dropouts decreased from 7.8 percent in 1990 to 5.3 percent in 1991 (New York City's rate is 17.2 percent.)
- The number of students failing every class dropped from 151 in January 1991 to 11 in June 1991.
- Class cutting has been reduced by 39.9 percent.
- Parent involvement has increased; PTA membership rose from 12 to 211 parents, even though dues tripled — parents now compete for PTA offices.
- Fewer students have excessive absences.
- Students are more involved; they provide peer tutoring, escort senior citizens on shopping tours, and participate in activities such as new clubs for darts, chess, computers, leadership, math, optical, and Asian and African-American culture.
- Twenty-five of 150 faculty members participate in unpaid after-school brainstorming sessions.
- English and social studies teachers are coordinating learning programs and implementing writing across the curricula. The trade departments order supplies jointly and meet to discuss instructional problems.
- Our Apprentice Training Program, designed by two teachers, pairs an entering freshman with a senior in shop classes for 10 weeks. The senior guides the ninth-grader through class experiments. Teachers report less boredom, thus better attendance, less disruption, and more learning.
- Requests for admission have increased; 10 students apply for every vacancy.
- The school has raised more than $1 million for new or additional programs and services. We are one of six New York high schools (the only vocational school) to receive $143,000 a year for three years to establish a year-round on-site employment office.
- Pratt Institute, Polytechnic University, and New York City Technical College run coordinated programs with us. Our students may take courses at these colleges while attending Westinghouse.
- External customers — including AT&T, Xerox, Marriott, Colgate-Palmolive, Digital Equipment, Time-Warner, and NYNEX — have generously provided technical assistance. Westinghouse Electric and National Westminster Bank USA have established scholarships for our most improved students. IBM provided a weekend of TQ training for our staff members, students, and parents.
- The Ricoh Corporation has become a partner. Soon our minority students will be repairing broken Ricoh photocopiers and fax machines.
- Business-School Advisory Councils in electronics, woodworking, and optical areas suggest ways to upgrade our programs and improve student employability.
- Union grievances fell from 26 in 1991 to none in 1992.

We have not finished, and we never will be! We know that we are on the right path — our customers tell us so!

Anticipate Obstacles to Change

By Kenneth R. Freeston, assistant superintendent, Newtown Public Schools, Newtown, Conn.

While there is mounting evidence that only quality oriented organizations can survive, unless we go about our business of change in a dramatically different fashion from our past attempts, the quality movement in schools will be doomed to the same familiar failings of other annual trends and quick fixes. Well-meaning educators will adopt quality as a solution before spending time articulating the problems it addresses.

People who know where they are going are more likely to get there. When going in the direction of quality, educators need to anticipate the formidable obstacles that block the way.

W. Edwards Deming's ideas work, but they encounter resistance when applied to schools.

Some of that resistance resides in the language used by him and other management theorists to explain quality; some of it comes from perceived weakness in the American corporate structure. However, much of this resistance resides in two areas: leadership and change.

Leaders of quality organizations must live and breathe the essence of quality. In every action they take, every decision they make, they are role models for the rest of the organization. While a quality school is not a top-down setting, unless the school leader is champion of quality, it simply won't happen.

In my view, two of Deming's 14 points are critically important to leaders: constancy of purpose and self-evaluation.

Deming asserts that 85 percent of the problems that exist within an organization are within management's power to solve. Yet those who occupy leadership positions in our schools are perhaps the single greatest obstacle to implementing a quality approach to the teaching and learning process.

School leaders are so overwhelmed by financial, political, and statutory constraints on their actions, they perceive themselves as powerless to effect real change in schools.

Over the past decade, schools developed mission statements. Generally in narrative form, written by broad-based committees, these statements tend to be characterized as a rational link of platitudes. Often, once written, these well-intentioned efforts play no continuing role in schools.

Specifically school and instructional practices remain unexamined for consistency with the mission. In a quality school, constancy of purpose is the critical factor.

Early systems of management theory, based on inspection of workers, failed because the inspection model assumed that fear would motivate the workers to higher levels of productivity. Someone was watching, rating, and ranking.

In a quality school, leaders drive out the fear by eliminating inspection for staff and program evaluation.

Collecting information is important to making better decisions but that information cannot be gathered usefully in a culture characterized by fear and mistrust.

To optimize the school's mission, every aspect of its work should be critically self-evaluated. In schools, the obstacles toward a self-evaluation process are considerable, given the public's concern over student performance and the widespread political pressure for school improvement.

These changes hold interesting consequences for recent initiatives in our profession, such as school-based management. Such efforts at collaborative decision-making in schools are good, but taken alone, they are short-range, quick fixes without a leadership commitment to constancy of purpose and self-evaluation.

A Look Inside a District's Quality Toolbox

By Gary George and Tom Trigg, Gardner-Edgerton-Antioch School District, Gardner, Kan.

Our district, lucky enough to receive some outstanding quality training opportunities for staff, is well on its way toward understanding and improving system processes in various areas.

These opportunities have included training sessions by Xerox and AT&T, W. Edwards Deming's two- and four-day seminars, and 20 hours of training for our district leaders (including teachers and principals) from the Quality Alliance, a division of the Learning Exchange of Kansas City.

Because of the amount and quality of training, we have been able to move forward with several projects to improve our system processes.

For example, in one area we were experiencing what we suspected were an abnormally high number of school bus discipline referrals. Principals spent a large amount of time dealing with bus discipline matters. With our newly acquired training in statistical tools of quality, we decided to look closely at this situation.

Once we constructed a Pareto chart, it clearly showed that one bus driver was associated with large numbers of bus referrals while some bus drivers had no referrals.

The next step was constructing a control chart to see what the mean number of referrals was and how far from the mean was this one particular case. When the control chart was first analyzed, we saw no special cause.

However, when probing further, we discovered in addition to written bus discipline referrals, the driver was phoning in referrals to the principal. When these were added together, we indeed discovered a special cause for the variation. We were able then to confidently take steps to clear up the matter.

Next we examined our enrollment process, a source of stead parent complaints. In our district, student enrollment is held over a three-day period in August. Each year, parents fill out the same forms they filled out the year before. Then they move from station to station as they complete the process.

Parents complained that too much time was taken in both moving to and from each station and filling out the same forms over and over.

So this spring, we convened the key secretaries involved in this process, assistant superintendent, and superintendent, and flow-charted the process.

As a result of understanding the process better through the flow chart, it appears that we can speed up the process for parents and provide computer-generated forms so that parents will only need to update them each year.

To boot, we received some unexpected spin-offs. We came up with several other ways to consolidate forms and reassign personnel to make the process more pleasant and efficient. And our secretaries felt like we had made major progress in streamlining the process.

Everyone involved in the project enjoyed the positive feelings from working on a project and seeing results.

As we look ahead, we see both opportunities and challenges. We're concerned about finding time and resources to train all of our personnel, which is a major goal.

This summer, we plan to offer a college course for our teachers to learn some basics of quality. We will also integrate training for The Seven Habits of Highly Effective People from the Covey Leadership Institute.

We see a need to have our students learn these concepts and use the tools of quality as well. We know we have a long way to go, but we're on our way.

Gary George is the superintendent and Tom Trigg is assistant superintendent.

Profile Measures Quality Progress

By Gerald L. McCoy, Superintendent, Eden Prairie, Minn.

Adapting continuous quality improvement concepts to education requires a systematic, scientific application of fundamental "quality principles" that flow out of the works of Deming, Crosby, and Juran. Entry into the continuous quality improvement process may appear seamless, but educators struggle with where to start the quality journey and how to measure progress.

Fifty school districts in the Minneapolis area are now using an instrument that helps assess their quality progress and chart a course for continuous quality improvement. The instrument is a Continuous Improvement Profile (CIP), developed by Positive Directions, Inc., of Minneapolis. The profile helps you know whether you have a quality school system. It can serve as a benchmark for change and a planning tool for a single school or an entire school district.

The CIP incorporates the concepts, philosophy, and tools found in the Malcolm Baldrige Award criteria. The profile focuses on eight elements of quality: customer focus, district focus, district leadership, planning, learning, continuous improvement, support, and working with others.

The 53 items in these quality categories capture two dimensions: current performance (what *is*) and current importance (what *should be*). Together, these measures create a GAP analysis that is visual and compelling. Educators see plainly when a negative discrepancy or gap exists between the anticipated and the actual outcomes. The CIP also gives directional feedback; it says the current level is just right or you should do more here or less there.

An effectiveness index expresses the ratio between what is delivered or performed against the expectation. This metric feature quantifies data and creates a Critical Effectiveness Index. Feedback from the profile helps the user determine the top eight critical issues. A priority grid lists *urgency* on the vertical scale and *importance* on the horizontal scale. This feature helps isolate opportunity areas where the greatest growth can occur and immediate action should be taken.

The user can also manipulate data and arrange the items in a Pareto chart to show where efforts should be directed. A force field analysis gives the user an indepth look at the barriers and energizers that can lead to successful solutions.

The CIP has brought new meaning to the Eden Prairie School District's continuous quality improvement efforts. We now have the baseline data we need to enhance our quality journey.

For more information on the Continuous Improvement Profile, write to Bruce Knudson, Positive Directions, Inc., 4865 Norwood Lane, Plymouth, MN 55442, or call (612) 5596446.

Further reading about quality

More than a dozen of the readings in this book include lists of related articles and books on quality management. Look for them on pages 6, 58, 71, 81, 85, 86, 95, 116, 130, 141, 155, 163, 169, and 183.

To learn more about how to use the statistical tools of quality, look for these books:

The Deming Route to Quality and Productivity, by William Scherkenbach, Washington, D.C.: CEEP Press Books, 1991

TQT Improvement Tools for Education. QIP Inc.,/PQ Systems, Inc. 1993 (Available from AASA, stock number 21-00370)

The Deming Management Method, by Mary Walton. New York, Perigree Books, 1986

Other AASA resources on quality management in education:

Books:	*AASA Stock Number:*
An Introduction to Total Quality for Schools: A collection of articles on the concepts of Total Quality Management and W. Edwards Deming. 1991. $24.95	21-00349
Creating Quality Schools, by Louis M. Savary. 1992. $2.50	21-00191
Overcoming Barriers to Educational Restructuring, by Grady McGonagill. 1993. $2.50	21-00397
TQM Handbook: Applying the Baldrige Criteria to Schools, by Joann Neuroth. 1992. $9.95	21-00149

Audiotapes:

Quest for Quality. Two tapes. $34.50	21-00317
The Way of Quality. Two tapes. $34.50	21-00372

Videotapes:

Continuous Quality Improvement. 1993. $49.95	21-00377
Quality and Education: Critical Linkages Conference. 1993. Three tapes. $110	21-00411
Creating Quality Schools. 1993. $195	21-00416
Dr. Deming Talks to Educators. Five tapes. $695	21-00222

To order, call AASA's Member/Customer Information Center at 703/875-0748.

For information on how to join AASA's Total Quality Network, call 703/875-0764.

Quality Goes to School

Credits

I. Lessons Learned from Others

1. "The Turning Point of the Quality Revolution" by Gerald Michaelson 1
From *Across the Board*, December 1990, reprinted with permission of the Conference Board.

2. "The Cost of Quality" by Jay Mathews and Peter Katel 7
From *NEWSWEEK*, September 7, ©1992, Newsweek, Inc. All rights reserved. Reprinted by permission.

3. "The New Society of Organizations" by Peter Drucker 9
From *Harvard Business Review*, September/October 1992. Reprinted by permission.

4. "Lessons We Can Learn from Industry" by Steven Brigham 19
From *Change Magazine*, May/June 1993, pp. 49-55. Reprinted with permission of Helen Dwight Reid Educational Foundation. Published by Heldref Publications, 1319 18th Street NW, Washington, D. C. 20036-1802. Copyright 1993.

5. "Lessons from the Workplace in the Classroom" by Mark Trumbull 25
From the *Christian Science Monitor*, May 1993. Reprinted by permission.

6. "Deming's Ideas Changing the World" by David Kerridge 28
From *Amstat News*, March 1991, newsletter of the American Statistical Association. Reprinted by permission.

II. Planning Period: Thinking Through Theory and Concepts

7. "Commentary" by Richard A. Rossmiller 31
Originally published in *Focus in Change*, the quarterly of the National Center for Effective Schools, University of Wisconsin--Madison; reprinted with the Center's permission. The National Center for Effective Schools, University of Wisconsin, 1025 W. Johnson Street, Madison, WI 53706

8. "What Do We Do to Improve?" by Anne Turnbaugh Lockwood 32
Originally published in *Focus in Change*, the quarterly of the National Center for Effective Schools, University of Wisconsin--Madison; reprinted with the Center's permission. See credit for article 7.

9, 10, 11. Previously unpublished articles by Myron Tribus 37, 41, 47

12. "On the Road to Quality" by Lewis Rhodes 54
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13. "Times of Scarcity Demand Cooperation" by Kosaku Yoshida 59
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14. "Recapturing the Spirit of Learning through a Systems Approach" by Peter Senge and Colleen Lannon-Kim 60
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15. "The Quality Revolution in Education" by Jay Bonstingl 66
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16. "On Restructuring Roles and Relationships: A Conversation with Philip Schlechty" by Ron Brandt 72
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17. "Quality Management in Schools" by Susan Leddick 76
From *The Journal for Quality and Participation*, January/February 1993. Vol. 16, No. 1:38-43. © 1993 by the Association for Quality and Participation, Cincinnati, Ohio. Reprinted with permission.

18. "Management Manifesto" by Yvonne Siu-Runyan and Sally Joy Heart 82
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19. "Total Quality Management" by Tyler Weaver 86
From *ERIC Digest*, August 1992, No. 73, ERIC Clearinghouse on Educational Management, College of Education, University of Oregon, Eugene, OR 97403. Reprinted with permission.

20. "The Cost of Quality" by Jim Carras, Denny Dowd, and Betty McCormick 88
From *Insight*, the quarterly magazine of the Texas Association of School Administrators, Fall 1993. Reprinted with permission.

21. "Quality Is Not a Quick Fix" by Kenneth Freeston 91
From *The Clearing House*, July/August 1993. Reprinted with permission of Helen Dwight Reid Educational Foundation. Published by Heldref Publications, 1319 18th Street NW, Washington, D. C. 20036-1802. Copyright 1993.

22. "Total Quality and Academic Practice: The Idea We've Been Waiting For?" by Peter Ewell 96
From *Change Magazine*, May/June 1993, pp. 49-55. Reprinted with permission of Helen Dwight Reid Educational Foundation. Published by Heldref Publications, 1319 18th Street NW, Washington, D. C. 20036-1802. Copyright 1993.

23. "Job One," by Lynn Olson 103
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24. "Quality Through Preventive Management" by Bill Borgers 111
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25. "Working Smarter Together" by Gordon Donaldson 112
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26. "Creating Effective Schools Today and Tomorrow" by Lawrence Lezotte 117
From *The Journal for Quality and Participation*, January/February 1993. Vol. 16, No. 1:22-30. © Copyright 1993 by the Association for Quality and Participation, Cincinnati, Ohio. Reprinted by permission.

III: Quality Goes to School -- Applying Quality Management

27. "Is TQM for Everybody?" by Anne Turnbaugh Lockwood 127
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28. "Why Are We Here?" by Anne Turnbaugh Lockwood 131
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29. "Mt. Edgecumbe's Venture in Quality" by Larrae Rocheleau 134
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30. "Glasser Comes to a Rural School" by Melanie Harris and Carl Harris 138
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31. "A Quality Approach to Writing Assessment" by Joanne Andrade and Helen Ryley 142
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32. "A Move from Effective to Quality" by Nancy Duden 144
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33. "Up Close: Benchmarking Produces Beneficial Results" by Mike Dalton 148
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34. "Transforming Schools through Total Quality Education" by Mike Schmoker and Richard Wilson 149
From *Phi Delta Kappan*, January 1993 Vol. 74, No. 5, pp. 389-395. Reprinted with permission of the Phi Delta Kappan.

35. "One District's Quality Improvement Story" by Patricia Abernethy and Richard Serfass 156
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36. "Getting Started with TQM" by Kenneth Freeston 160
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37. "TQM in Tupelo" by Marilee C. Rist 164
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38. "Quality Management for Schools" by Dorothy Mulligan 167
From *Streamlined Seminar*, October 1992. Volume 11, No. 2. Reprinted with permission. National Association of Elementary School Principals.

39. "If You Can Count It, You Can Improve It" by Robert Bender 171
From *The School Administrator*, November 1991. Vol. 48, No. 9:24-26. Reprinted with permission of the American Association of School Administrators. All rights reserved.

Articles 40-43 and 47-54 are previously unpublished; articles 44, 45, and 46 are reprinted from *Quest for Quality*, the newsletter of the Commitment to Quality Project of the Virginia Department of Education.

IV. Systems Leaders Speak

Articles 55-80 have appeared in *Quality Network News*, the newsletter of AASA's Total Quality Network.

Continuous *Learning* from Continuous *Teaching*

A remembrance of W. Edwards Deming
October 14, 1900 - December 20, 1993

It has become fashionable to fear movements led by "gurus." Unfortunately, our society has lost the original meaning of guru, which is "a personal teacher," and has confused the issue by employing an outdated model of "teaching."

W. Edwards Deming's ideas resonate well with many Americans because they glorify the *person* in the process, as opposed to the end product, alone. But that doesn't completely explain the *personal* transformational effect he had on individuals. Trying to understand that, I have observed and queried participants at his seminars and members of AASA's own staff who interacted with him, in addition to reflecting on my own experiences.

What I found centered on two characteristics of the man -- the model of a continuous learner that he provided, and the nature of his interactions with others as people from whom he might learn.

By maintaining constancy of *his* purpose -- i.e., his continuous learning -- Deming taught that you can be a learner without being a teacher, but you can't be a teacher without being a continuous learner. This personal awareness provided him with a common reference point serving as a criterion for how he helped others learn.

This simultaneous model of teaching and learning may have taught the most about continuous improvement. His mind was continuously improving even as his body failed. At his last seminar, less than two weeks before he died, he was in nurses' constant care, on oxygen, and in a wheelchair. During breaks when others were leading the seminar, staff members had to hide his clock to keep him from returning to the session to listen and learn from the discussions. And in the days after that last seminar, he kept reading and working with others by phone.

People who feel they knew Deming, or just had personal contact with him, also feel he knew them. He attended and listened to them. People came away transformed by the experience of being appreciated and acknowledged -- feeling their ideas might make a difference. You saw this in his seminars, where he taught primarily through questioning and group activities that allowed you to leave with *your* answers -- not necessarily "right" answers, but your answers to the right questions.

In personal interaction, Deming listened, noted, thought, reacted to what you said (not always positively) and refused to provide "answers." He always acknowledged anything done for him. "You did a fine job," was a typical response.

Was Deming a guru? For many, he had that personal impact. As I look across the names of others in the quality movement who, along with Deming, have been given that label, I find it hard not to apply that term to him.

W. Edwards Deming was a *teacher*; the others are just consultants.

Lewis A. Rhodes
Associate Executive Director
AASA

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